

# KV-A2110B/A2510B

## RM-816

## SERVICE MANUAL

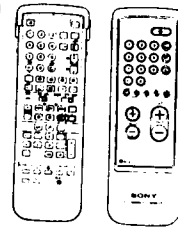
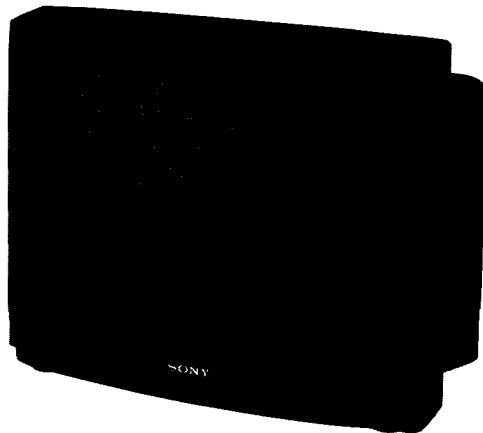
*French Model*

KV-A2110B

Chassis No. SCC-E19C-A

KV-A2510B

Chassis No. SCC-E19E-A



## AE-1C CHASSIS

### MODELS OF THE SAME SERIES

KV-A2110B/A2510B

KV-E2521B/E2921B

### SPECIFICATIONS

#### 【KV-A2110B/A2510B】

Television system

B/G/H, I, L

Color system

PAL, SECAM, NTSC3.58, NTSC4.43

Stereo system

GERMAN stereo

Channel coverage

VHF: F2-F10 UHF: E21-E69

CABLE TV : C-Q/S1-S20

HYPER S21-S41

Picture tube

Black Trinitron tube

Approx. 54.5 cm (21 inches)

(Approx. 51 cm picture measured diagonally)

110°-degree deflection

Approx. 63.5 cm (25 inches)

(Approx. 59 cm picture measured diagonally)

110°-degree deflection

Inputs

1 21-pin connector:

CENELEC standard including RGB input.

2 21-pin connector:

including S video input

Front : 3 Audio and video input jacks:

phono jack.

Y: 1Vp-p±3dB 75ohm

C: 0.3Vp-p±3dB 75ohm

Outputs

21-pin connector: CENELEC standard

Headphones jack: stereo minijack

External speaker terminals: 2-pin DIN

Audio output jacks: phono jack (output dependent upon TV settings)

Sound output

30 W + 30 W

Power consumption

98Wh (KV-A2110B)

112Wh (KV-A2510B)

Dimensions incl.speakers

Approx. 615x439x488 mm (w/h/d)  
(KV-A2110B)

Approx. 677x501x481 mm (w/h/d)  
(KV-A2510B)

Weight incl.speakers

Approx. 28.0kg (KV-A2110B)

Approx. 40.0kg (KV-A2510B)

#### 【RM-816】

Remote control system

infrared control

Power requirements

3V dc

2 batteries IEC designation

R6 (size AA)

Approx. 75×221×23mm(w/h/d)

Approx. 194g

IEC designation R6 batteries (2)

Dimensions

Weight

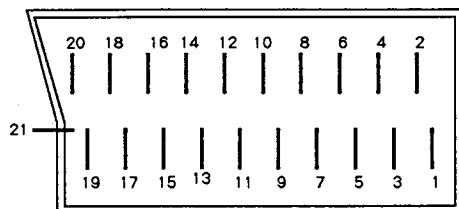
Design and specifications are subject to change without notice.



# TRINITRON® COLOR TV


# SONY®

21-pin Euro Connector Configuration




PIN	SIGNAL	SPECIFICATION
1	Audio output	0.5Vrms/1kilohm or less
2	Audio input	0.5Vrms/10kilohms or more
3	Audio output	0.5Vrms/1kilohm or less
4	Earth (audio)	
5	Earth (B-input)	
6	Audio input	0.5Vrms/10kilohms or more
7	B-input	0.7Vp-p/75ohms
8	Function switching	9.5V to 12V
9	Earth (G-input)	
10		
11	G-input	0.7Vp-p/75ohms
12		
13	Earth (R-input)	
14	Earth (blanking)	
15	R-input	0.7Vp-p/75ohms
16	Fast blanking	1V to 3V/75ohms
17	Earth (video)	
18	Earth (fast blanking)	
19	Video output	1Vp-p/75ohms
20	Video input	1Vp-p/75ohms
21	Screening plug	

**SAFETY-RELATED COMPONENT WARNING !!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!**

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY.

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. GENERAL</b>			<b>4. CIRCUIT ADJUSTMENTS</b>		
1-1.	TV Channel Presetting .....	4	4-1.	A Board Adjustments .....	20
1-2.	Basic Functions .....	6	4-2.	B1 Board Adjustments .....	20
1-3.	Special Functions .....	6	4-3.	D Board Adjustments .....	21
1-4.	Use of the Teletext Service .....	7	4-4.	J1 Board Adjustments .....	22
1-5.	Connections and Optional Functions .....	9	4-5.	Secondary Adjustments .....	22
1-6.	General Information .....	10			
<b>2. DISASSEMBLY</b>			<b>5. DIAGRAMS</b>		
2-1-1.	Rear Cover Removal (21 inch) .....	11	5-1.	Block Diagram .....	25
2-1-2.	Rear Cover Removal (25 inch) .....	11	5-2.	Circuit Boards Location .....	29
2-2.	Chassis Assy Removal .....	11	5-3.	Schematic Diagrams and Printed Wiring Boards	
2-3.	A and J1 Boards Removal .....	12	— Conductor Side — .....		29
2-4.	B1 and V Boards Removal .....	12	5-4.	Semiconductors .....	61
2-5.	Service Position .....	12			
2-6-1.	Picture Tube Removal (21 inch) .....	13	<b>6. EXPLODED VIEWS</b>		
2-6-2.	Picture Tube Removal (25 inch) .....	14	6-1.	Chassis .....	63
			6-2.	Picture Tube .....	64
<b>3. SET-UP ADJUSTMENTS</b>			<b>7. ELECTRICAL PARTS LIST</b> .....		65
3-1.	Beam Landing .....	15			
3-2.	Convergence .....	16			
3-3.	Focus .....	18			
3-4.	Screen (G2) and White Balance .....	18			

# SECTION 1

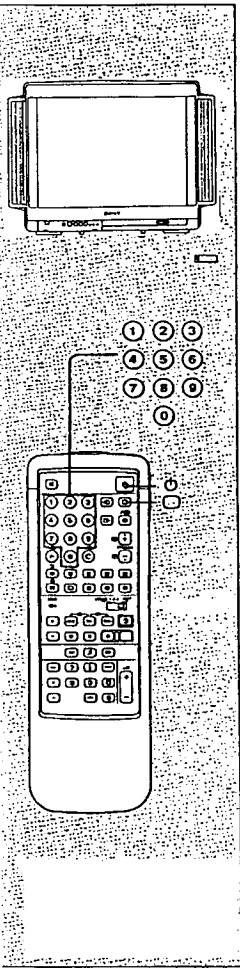
## GENERAL

### 1-1. TV CHANNEL PRESETTING

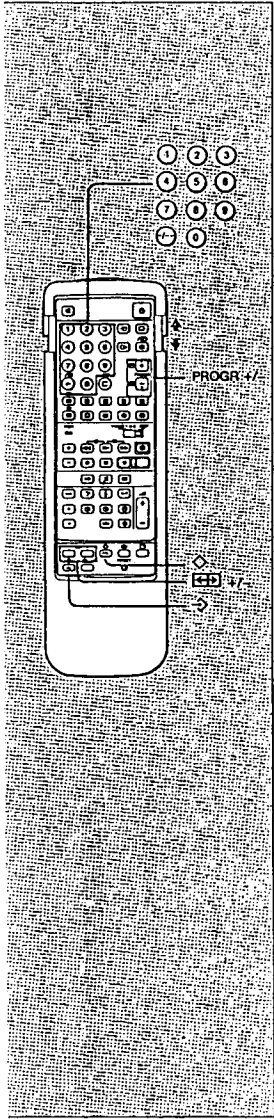
After installing the TV set, TV channels must be preset.

TV broadcasting stations broadcast their programmes on certain fixed frequencies (channels). In order to receive these programmes it is necessary to search for the relevant broadcasting station and to set record it as a channel. The "programme number" is the number that the user decides to associate with a certain channel.

For channel settings there are 60 positions available in the memory. In this way all stations broadcasting within the user's country can be received and recorded as a channel.



Turning the TV unit ON and OFF	
Operation	Result
<b>1</b> Press  on the TV set.	The TV set will come on. Note: If no picture appears on the screen, the TV set is in the stand-by mode. In this case follow instructions given in step 2.
<b>2</b> Press  or one of the selection numbers of the remote control unit.	A programme number appears on the screen.
Temporarily turning off the TV set: Press  on the remote control unit.	The TV set will enter the stand-by mode. It can be turned on again by pressing the  button, or the selection button of the remote control unit.
Turning off the TV set definitively: Press  on the TV set.	The TV set will be turned off.



### TV channels automatic presetting




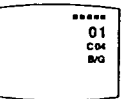
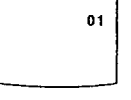
If the numbers to be associated with certain TV channels are already known, the following explanation can be skipped. In this case go directly to the section "TV channels direct selection".

Operation	Result
<b>1</b> Press  to begin the preselection.	The programme number flashes.
<b>2</b> Press PROG + / - buttons of the remote control unit to select the channel number of the broadcasting station you want to memorize.	The programme number on the screen changes. NOTE: In case of a mistake, the "X" letter appears. Repeat once more the operation of step 2.
<b>3</b> To search for broadcasting stations press  + and - buttons.	When a broadcasting station is tuned correctly, the search will stop. If you want to skip it, press  + or - again.
<b>4</b> Press  to memorize the channel to that the broadcasting station is tuned.	All data visualized under the channel number disappears from the screen.
<b>5</b> To memorize other broadcasting stations repeat steps from 1 to 4.	



## Direct TV channel setting

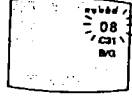

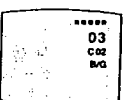
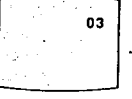
Direct presetting of TV channels is faster than automatic presetting. With this function any broadcasting station can be searched for and set as the desired channel.

Operation	Result
<b>1</b> Press → to begin the presetting.	 The programme number begins to flash on the screen.
<b>2</b> Press the PROGR +/- buttons of the remote control unit to select the channel number under which you want to set the broadcasting station.	 The programme number on the screen changes. <b>Note</b> In case of mistake, the "X" letter appears on the screen. Repeat once more the operation of step 2.
<b>3</b> Press C. If you wish to select a cable station press C twice.	 Indication "C-" ("S-" for cable stations) flashes on the screen
<b>4</b> By using the number buttons of the remote control unit select the channel number, always with two figures (for "4" press "04").	 The channel number changes on the screen.
<b>5</b> Press ◊ to memorize the channel to which the station is tuned.	 All indications, except the programme number, disappear from the screen.

To memorize other broadcasting stations repeat the above procedure.

## Exclusion of programmes

Once all desired stations have been memorized, unoccupied channel numbers, with stations of inferior quality signals can be excluded. The undesired channels can be excluded by using the PROGR + and - buttons.

Operation	Result
<b>1</b> Press → to begin presetting.	 The programme number begins to flash on the screen.
<b>2</b> By acting on the PROGR + and - buttons, or on the number keys of the remote control unit, select the programme number you wish to exclude.	 The programme number changes.
<b>3</b> Press Coo.	 Under the programme number, the preceding channel number appears.
<b>4</b> Press ◊.	 All indications under the programme number disappear from the screen. The excluded programme number will be memorized.

### Note

Undesired channels can be excluded only by using PROGR + and - keys. Excluded programme numbers appear on the screen if you press the number keys of the remote control unit.

## Use of additional tuning functions

### Temporary channel tuning

It is possible to temporarily memorize a channel, even if it has not been preset.

Operation	Result
<b>1</b> Press C. Press C twice for a cable station.	"C" ("S" for cable stations) indication appears on the screen.
<b>2</b> Using the number keys of the remote control unit select the channel number, always with two figures (e.g., "04" for channel "4").	The channel will be received, but it will not be set as a programme number.

## 1-2. BASIC FUNCTIONS

This section of the manual explains the use of the two fundamental functions of the TV set, selection of TV programmes and volume control.

Use the "simple" side of the remote control unit.

### Programme selection

Before selecting programmes make sure that TV channels have been memorized.

Operation	Result
<b>1</b> Turn the TV set on.	
<b>2</b> Press PROGR +/- buttons or the number keys of the remote control unit. To select a 2-figure number press +/- button. E.g., if you wish to select number 23, press +/- first, and then 2 and 3.	The selected programme number appears on the screen.

### Volume control

Operation	Result
Press $\Delta$ + or -.	The volume indication appears on the screen.

### Use of additional functions

#### Use of other functions with the TV set buttons

It is also possible to select programmes and to adjust the volume by using P  $\rightarrow$   $\Delta$   $\rightarrow$   $\odot$  and  $\rightarrow$   $\leftarrow$  + or - buttons, located on the front panel of the TV set. In this case, press first P  $\rightarrow$   $\Delta$   $\rightarrow$   $\odot$  until the indication P (channel) or  $\Delta$  (volume) appears on the screen, and then press  $\rightarrow$   $\leftarrow$  + or - buttons.

#### Use of teletext service

Press  $\odot$ . To revert to the TV mode, press  $\odot$ . For further information on the teletext service see pag. 13.

## 1-3. SPECIAL FUNCTIONS

This section explains the use of functions for adjusting pictures and sound; for inserting on the screen the name of a channel; and for fine tuning of a channel.

Use the "complete" side of the remote control unit.

### Use of special functions

The following functions can be used.

Function	Operation	Reset
Indication display	Press $\odot$	Press $\odot$ again.
Sound muting	Press $\times$	Press $\times$ again.
Language selection for bilingual programmes.	Press A/B. The selected language is displayed by the relevant indication on the screen.	Press A/B.
Sound adjustment for music programmes.	Press $\text{J}$	Press $\text{J}$ again.
Use of special sound effects.	Press $\odot$	Press $\odot$ again.
Time display (only during teletext broadcasting).	Press $\odot$	Press again.

### Picture and sound adjustment

Although picture and sound adjustment has already been performed in the factory, it is still possible to make them more suitable to one's own taste. The following table shows all available functions and their effects.

#### Operation

Function	Controls to be used	Result
Button selection	$\odot$ $\odot$ $\odot$ $\odot$ $\odot$	The symbol appears on the screen.
Adjustment of the selected function	$\odot$ $\odot$	The level has been adjusted.

#### Picture adjustment

Adjustment	Symbol	Result (+ $\leftrightarrow$ -)
Colour	$\odot$	Further or lesser colour intensity
Contrast	$\odot$	Further or lesser contrast
Brightness	$\odot$	Bright ( $\leftrightarrow$ ) dark
Hue (for NTSC only)	$\odot$	More red $\leftrightarrow$ more green
Picture definition	$\odot$	More definition $\leftrightarrow$ less definition

#### Sound adjustment

Adjustment	Symbol	Result (+ $\leftrightarrow$ -)
Bass	$\text{?}$	More of low frequencies $\leftrightarrow$ less of low frequencies
Treble	$\text{?}$	More of high frequencies $\leftrightarrow$ less of high frequencies
Speakers balance	$\text{?}$	Volume increase from right speaker $\leftrightarrow$ Volume increase from left speaker

#### Reversion to the original adjustment

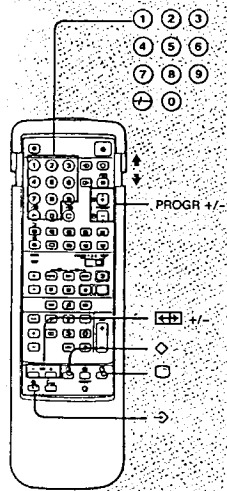
Press  $\rightarrow$   $\leftarrow$ .

## 1-4. USE OF THE TELETEXT SERVICE

### Broadcasting station identification

By associating a name with a certain broadcasting station it is possible to avoid having to remember, each time, in which channel number that particular station has been memorized.

Five different characters are available for station identification.



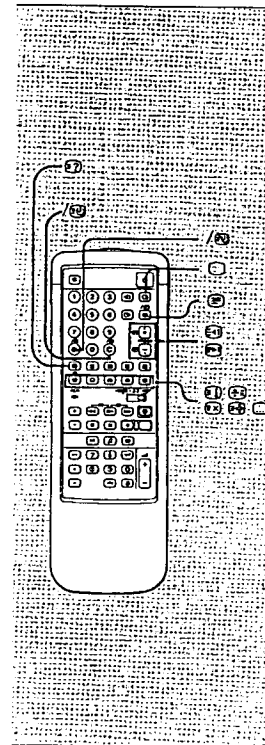
Operation		Result
<b>1</b> By using PROG+ or -, or the number keys of the remote control unit, select the programme number to be set for identification.		The programme number to be set for identification appears on the screen.
<b>2</b> Press →		The number flashes on the screen.
<b>3</b> Press ○		The first indication line flashes on the screen.
<b>4</b> Using the  + or - buttons select a letter of the alphabet, a number, or a blank space.		Alphabet letters, numbers or a blank space (" ") appear on the screen, in that order.
<b>5</b> Press ○		In this way the first character has been set, and the following position now flashes on the screen.
<b>6</b> Repeat steps 4 and 5, and fill all five available spaces.		
<b>7</b> Press ◇		All indications under the programme number disappear from the screen. All indications remaining on the screen have been memorized.

### Manual fine tuning

If the picture is not perfect, it is possible to fine tune it manually.

Operation	Result
Press  + or - repeatedly until the picture is at the optimum.	The Indication →F← appears on the screen.
Press → to start preselection.	The programme number starts flashing on the screen.
Press ◇.	Manual fine tuning has been memorized.

Note: Manual fine tuning will be reset when the channel is selected again.  
una volta automaticamente viene ripristinato quando il canale viene  
to un'altra volta.



Through the teletext service a great deal of information can be received at any time. Broadcasting stations make this service available through TV broadcasts. To use the teletext service, use the green keys on the "complete" side of the remote control unit. When the "simple" side of the remote control unit is used, only the basic functions are available.






### How to display teletext service

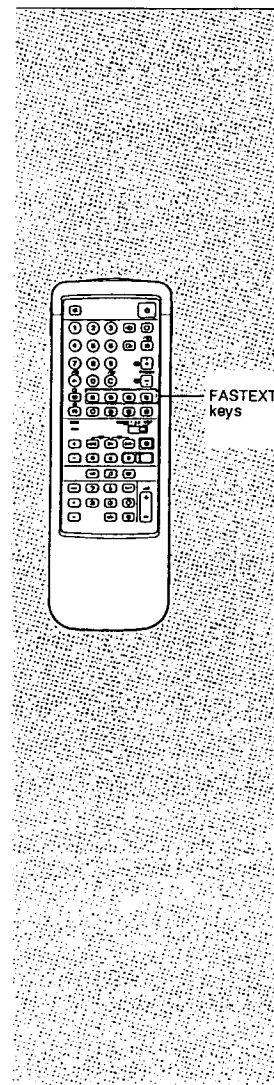
Operation		Result
<b>1</b> Select the channel you want to watch.		The channel changes on the screen.
<b>2</b> Press		If there is no teletext signal, the indication "Page 100" appears on the screen.
<b>3</b> Use the number keys of the remote control unit to insert the three figures corresponding to the desired teletext page. Note In case of a mistake, press any three numbers, and then repeat the operation with the correct numbers.		The selected page number appears on the screen. After a few seconds, the selected page appears on the screen.
To revert to normal TV programmes: Press ○.		
To change teletext channel: First press ○ to revert to the TV mode, and then repeat procedure steps 1 to 3.		

Note: A weak TV signal may cause troubles in the use of teletext.

### Use of special teletext functions

Required function	Operation	Result (on the screen)
Page index required.	Press  (INDEX).	Page index appears.
Sub-pages required (page 888).	Press ○	The sub-page appears (page 888).
Access to previous or following pages.	Press  (PAGE +) or  (PAGE -).	The preceding or the following page appears.

Required function	Operation	Result (on the screen)
Superimposition of the teletext on the TV programme.	In the TV mode, press <b>TEXT</b> twice. To revert to the normal teletext function press <b>TEXT</b> again.	 Teletext information will appear superimposed on the TV programme.
To prevent page changes due to page up-dating.	Press <b>TEXT</b> (STILL). Press <b>TEXT</b> (TXT/MIX) to revert to the normal function.	 The <b>TEXT</b> (STILL) symbol appears on the screen.
Magnification of teletext characters.	Press once to magnify the upper half of the screen. Press twice to magnify the lower half of the screen. Pressing the button three times the normal vision is restored.	 The upper or the lower half of the page is magnified.
Display of hidden information (answers to quizzes, ecc.).	Press <b>TEXT</b> (RIV). Press again to hide the answers.	 The information is displayed.
Watching a programme while the teletext searches for the required page.	1. Ask again for the page.	The number is displayed.
	2. Press <b>TEXT</b>	TV programme is displayed.
	3. When the required page has been found, the page number will be displayed.	 P201
	4. Press <b>TEXT</b> to display the page.	The desired page will be displayed.
Display of a page at a preset time.	1. Request the page.	The selected page will be displayed.
	2. Press <b>TEXT</b> (MEM.T).	In the lower part of the screen the indication "T*****" appears.
	3. Set the required time by using the number keys, and by inputting four figures (e.g. 0730 for "7:30").	The required time is displayed on the screen.
	<p>To watch TV programmes until a preset time Press <b>TEXT</b> (CANC.). At the required time, the selected page appears in the upper part of the screen. Press <b>TEXT</b> to display the page.</p> <p>To cancel the request Display the teletext page and then press <b>TEXT</b> (CANC.M.).</p>	



### Use of the FASTEXT function

The FASTEXT function allows rapid access, at the touch of a single button, to the teletext functions. In the lower part of the screen, a colour coded index will be displayed when a FASTEXT teletext page is broadcasted. Each colour corresponds to the coloured keys on the remote control unit.

#### Operation

Operation	Result
Press one of the coloured key on the remote control unit corresponding to the coloured indications of the FASTEXT teletext page.	The selected teletext page appears on the screen.

#### Note

The correct use of the FASTEXT teletext function depends on the signal being broadcast by the TV stations. Some TV stations may not broadcast FASTEXT teletext signal.

Note: Depending on the teletext service, certain functions may not be available.

## 1-5. CONNECTIONS AND OPTIONAL FUNCTIONS

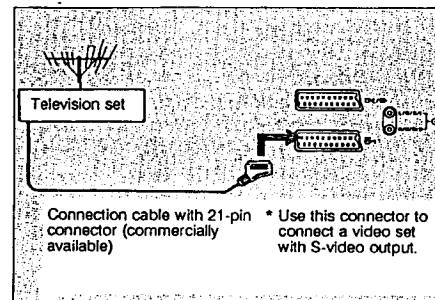
This TV set may be connected to other audio/video machines, such as videocameras, VTRs, videodisc players, or stereo systems.

### Connection to an external audio/video system

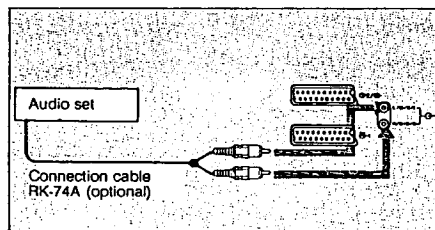
This TV set incorporates three groups of connectors, for input and output to the TV signal. Each group has the following characteristics.

Connector	Input signal	Output signal
Ⓔ-1	Normal audio/video signal or RGB signal	TV tuner audio/video signal
Ⓔ-2/Ⓔ-3	Normal audio/video signal and S-video signal	Audio/video signal from a selectable source
Ⓔ-3, Ⓔ-4, -Ⓔ front panel	Normal audio/video signal and S-video signal	No signal

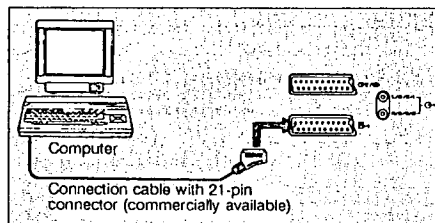
#### Connection of a TV set



#### Connection of an audio unit

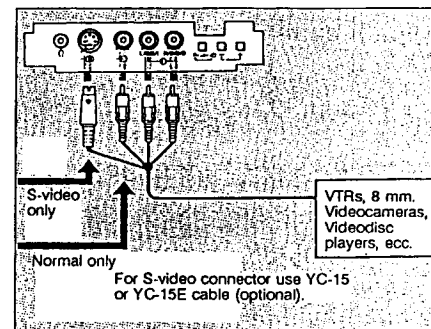


#### Connection to a computer with RGB output



#### Temporary connection of video apparatus

For a temporary connection (e.g. of a videocamera) use the front panel terminals.



#### Connection of a video taperecorder through the T connector

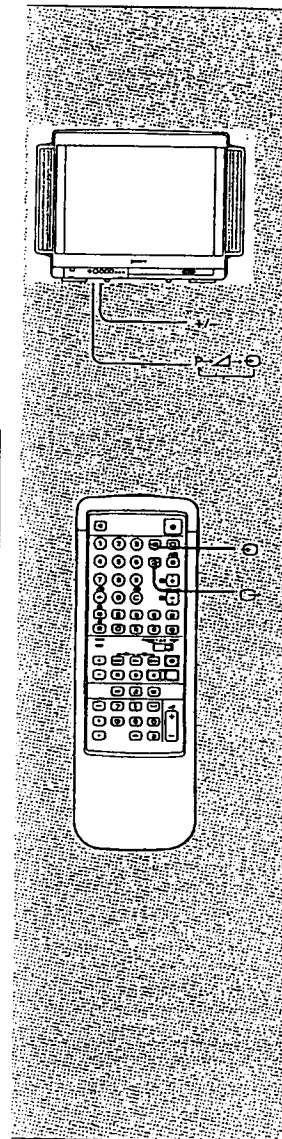
Connect the antenna input (AERIAL-IN) of the TV set to the antenna output (AERIAL-OUT) of the video taperecorder.

#### S-video input (Y/C input)

The video signal is formed by two separate signals: the luminance (Y) and the chrominance (C). Through the separation of the two signals it is possible to improve picture quality (luminance in particular), preventing reciprocal interferences. This TV set features two S-video sockets able to directly receive this type of signal.

#### Pictures with distortion

Move the TV set away from the video taperecorder if pictures or sound become distorted.



### Video programme playback

Using the input selector, pictures coming from a video taperecorder connected to the TV sets input, may be played back.

#### Operation

Operation	Result
Select the desired video input by pressing Ⓔ repeatedly.	The symbol of the selected input appears on the screen (see table hereunder).
Press Ⓔ button to revert to TV mode.	

#### Selectable inputs

Symbol	Selected input
Ⓔ-1	Audio/video signal from Ⓔ-1 connector.
Ⓔ	RGB signal from Ⓔ-1 connector.
Ⓔ-2	Audio/video signal from Ⓔ-2/Ⓔ-3 connector.
Ⓔ-2	S-video signal (from a VTR with S-video output) from Ⓔ-2/Ⓔ-3 connector.
Ⓔ-3	Audio/video signal from Ⓔ, -Ⓔ connector located on the front panel.
Ⓔ-3	S-video signal from S-video -Ⓔ (4 pin) connector located on the front panel.

Input can be selected also with P-1/Ⓔ buttons of the TV set.

In this case, first select Ⓔ, and then press the +/- buttons to select the desired input.

### Selection of video output from a Ⓔ-2/Ⓔ-3 connector

The Ⓔ-2/Ⓔ-3 connector may output 4 video signals. Select the outgoing video signal in the following way.

#### Operation

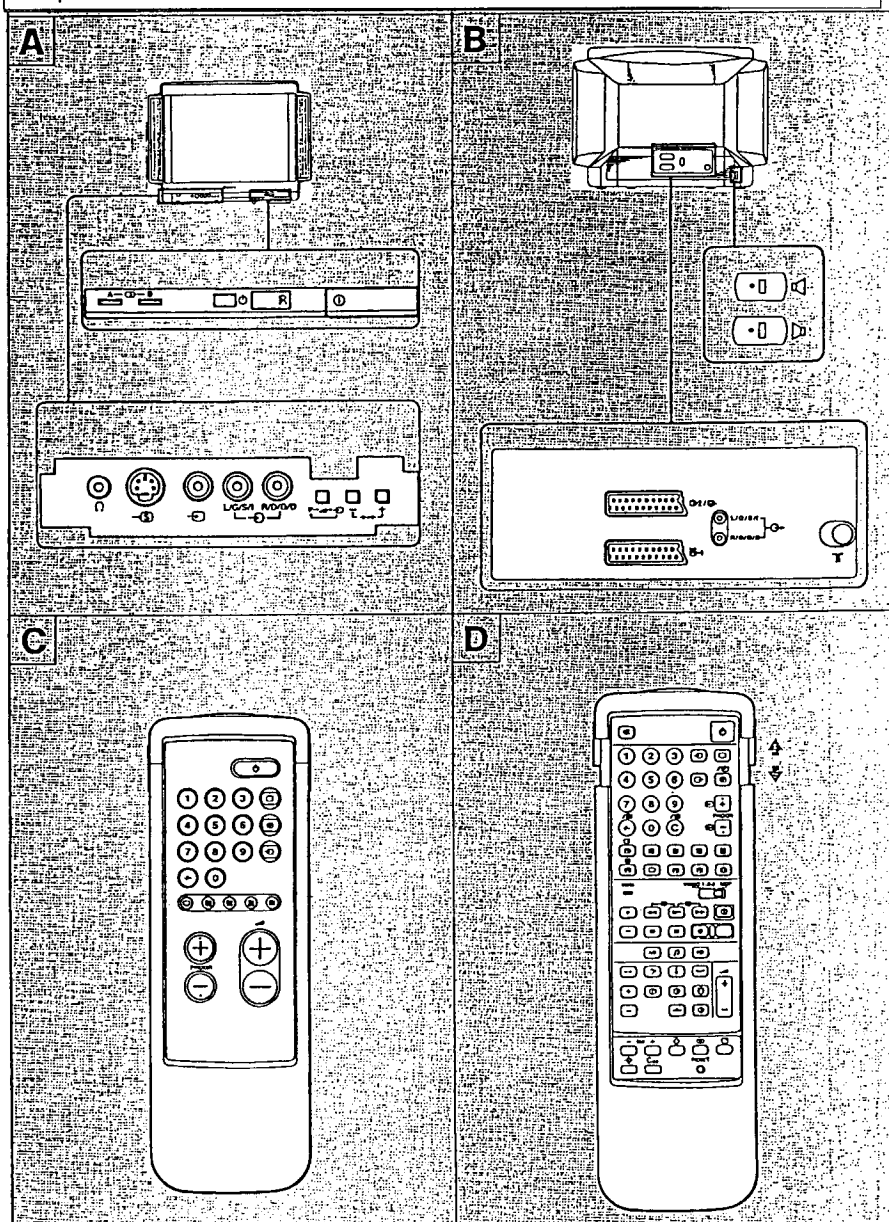
Operation	Result
Press Ⓔ repeatedly to select the desired video input.	The selected video input symbol appears on the screen (see the table following).

#### Output signal

Symbol	Selected output
1Ⓔ	Audio/video signal from Ⓔ-1 connector.
2Ⓔ	Audio/video signal from Ⓔ-2/Ⓔ-3 connector.
3Ⓔ	Audio/video signal from Ⓔ and -Ⓔ connectors.
TV Ⓔ	Audio/video signal from T-type antenna connector T.

## 1-6. GENERAL INFORMATION

### Components identification



This section briefly describes controls of the TV set and the remote control unit, and their relevant functions. For further details see the page shown on the right side of each description.

A TV set front panel	
Indication	Description
	Power switch
	Stand-by switch
A-B	Bilingual function indications
	Headphones connector (stereo mini-jack)
	Input connectors (S-video/video/audio)
	Function selector (programme/volume/input)
	Function adjustment keys

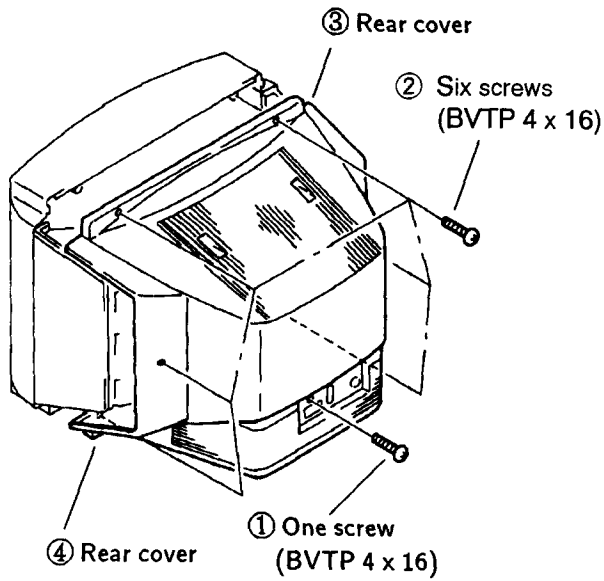
B TV set rear panel	
Indication	Description
	Speaker connectors (upper: left speaker; lower: right speaker)
	Connector 2, Euro AV (SCART, 21-pin). S-video in/video in/TV/video out signals.
	Connector 1, Euro AV (SCART, 21-pin). RGB in/video in/TV/out signals.
	Audio output connectors (RCA pin)
	Antenna connector (of IEC standard)

C Remote control unit — simplified side	
Indication	Description
	Input selector
	Teletext service key
	TV set power switch and TV mode selector
	Standby key
1,2,3,4,5,6,7,8,9,0	Number keys
-/-	Channel selection key/ 2-figure programmes
	Volume adjustment key
PROGR +/-	Programme selection key

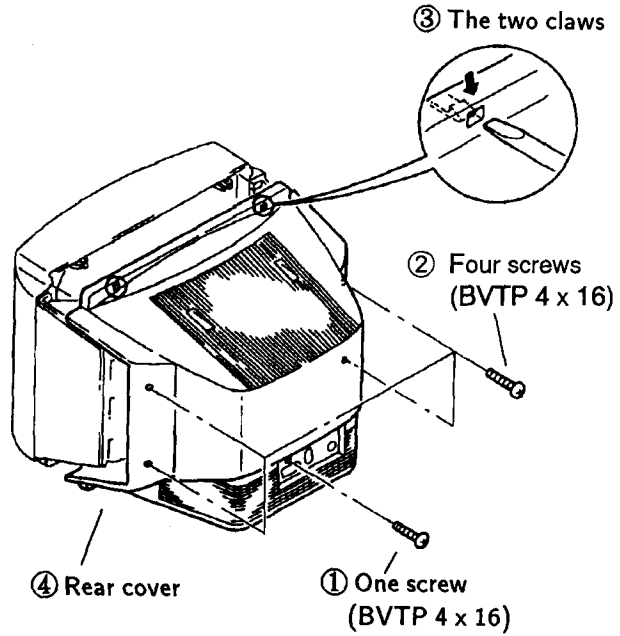
D Remote control unit — complete side	
Indication	Description
	Sound muting key
	Standby key
1,2,3,4,5,6,7,8,9,0	Number keys
	Input selector
	TV set power switch and TV mode selector
	Output selector
	Teletext key
	Music programme key
A/B	Bilingual programmes language selection
-/-	Channel selection key/ 2-figure programmes
C	Channel direct selection key
	Special sound effect key
	Time display
	Teletext operation keys
	Display key
	Reset key
	Volume adjustment keys
PROGR +/-	Programme selection keys
	Image and audio adjustment keys
MEM	MEM light indication
VIDEO 1/2/3, MDP	Video unit selector
	Video units function key
Coo	Programme cancelling key
	Channel presetting key
+ [ ] -	Channel tuning keys
	Channel storing keys
	Broadcasting stations identification key
RESET	Cancel key

## SECTION 2 DISASSEMBLY

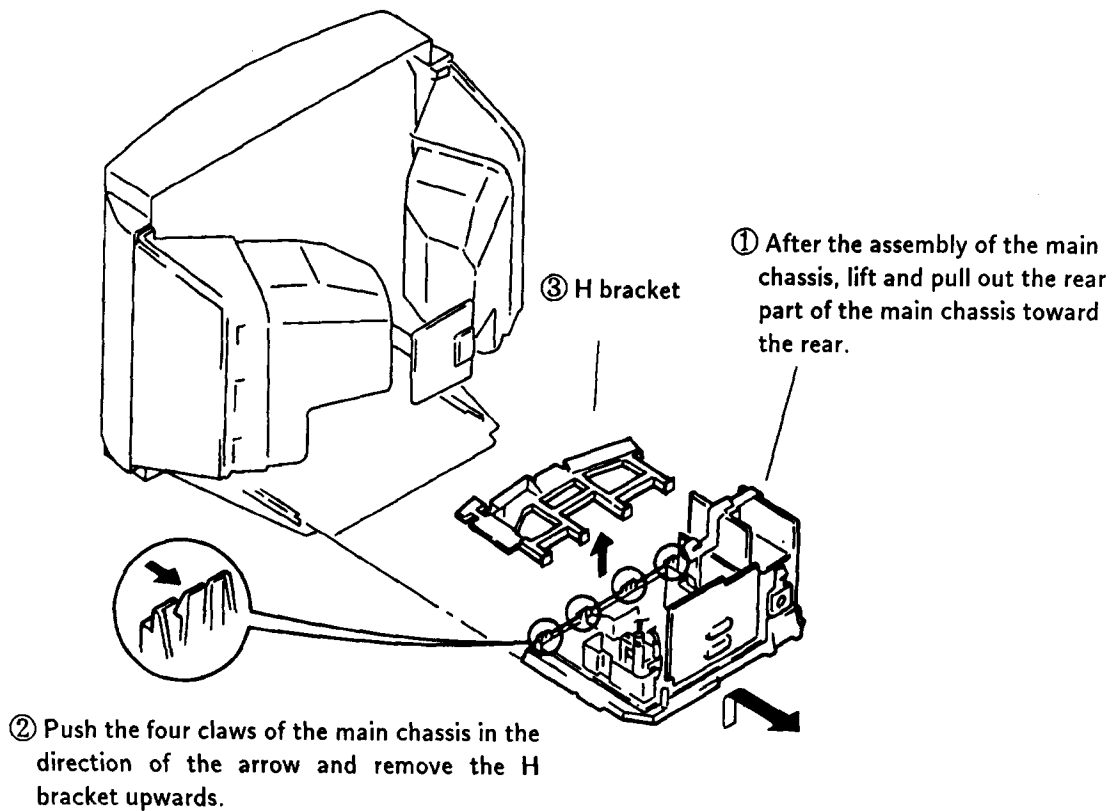
### 2-1-1. REAR COVER REMOVAL (21 inch)



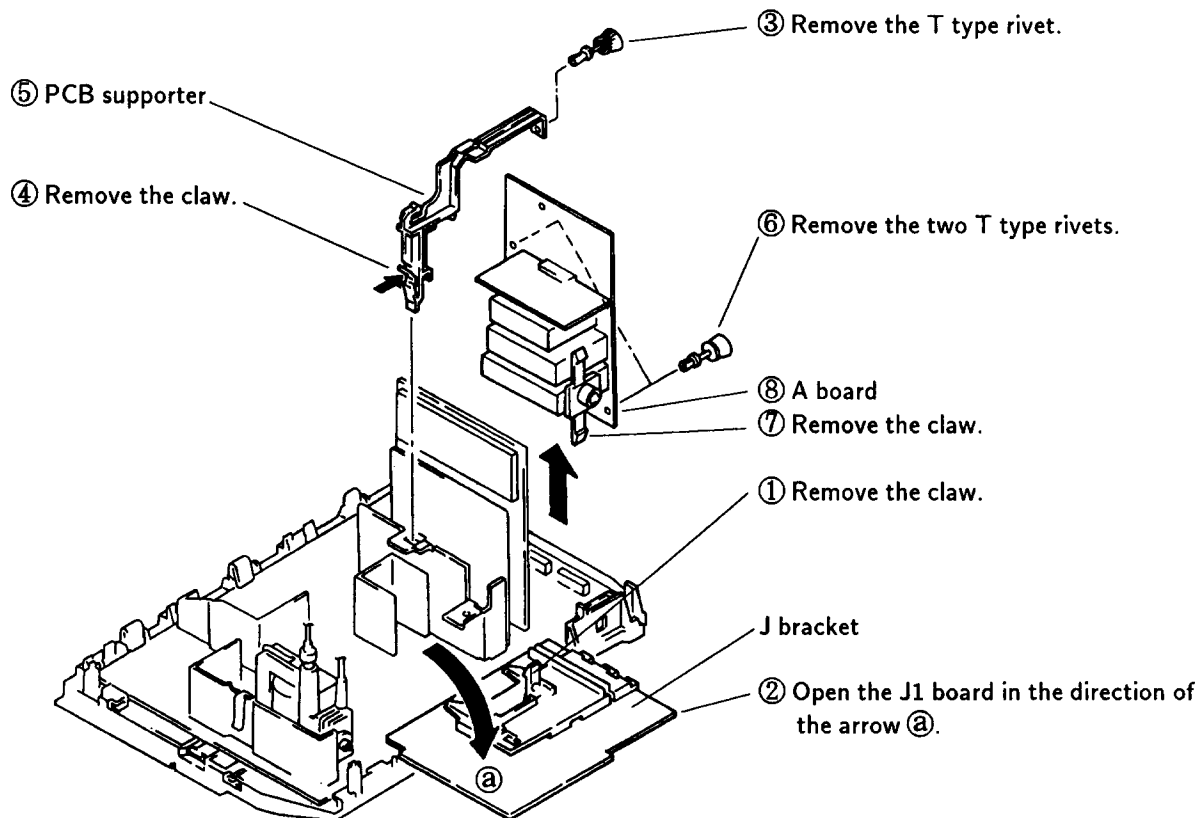
### 2-1-2. REAR COVER REMOVAL (25 inch)



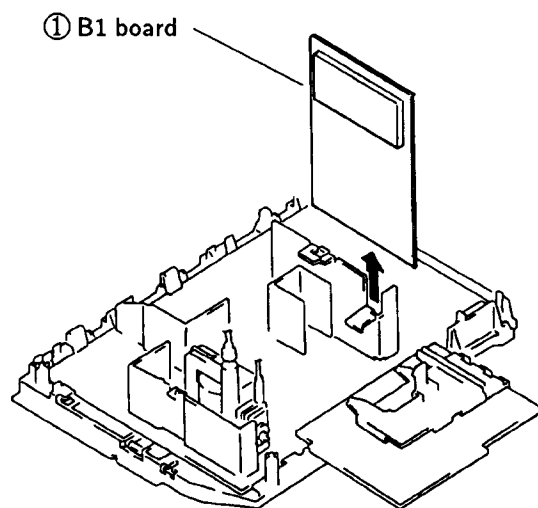
### 2-2. CHASSIS ASSEMBLY REMOVAL



## 2-3. A AND J1 BOARDS REMOVAL

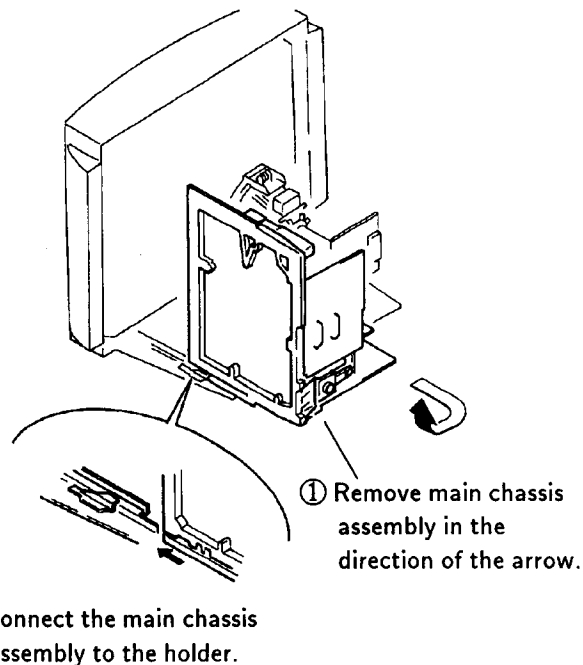


## 2-4. B1 BOARD REMOVAL

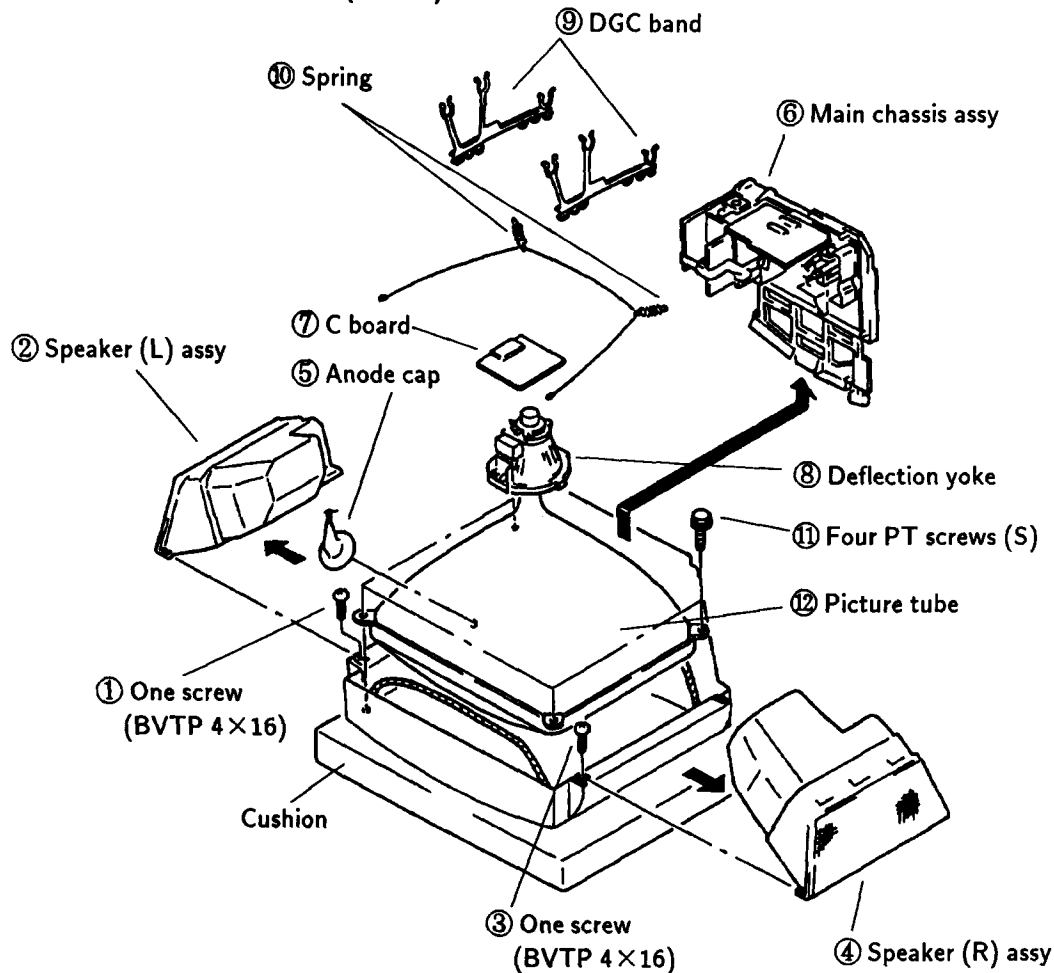
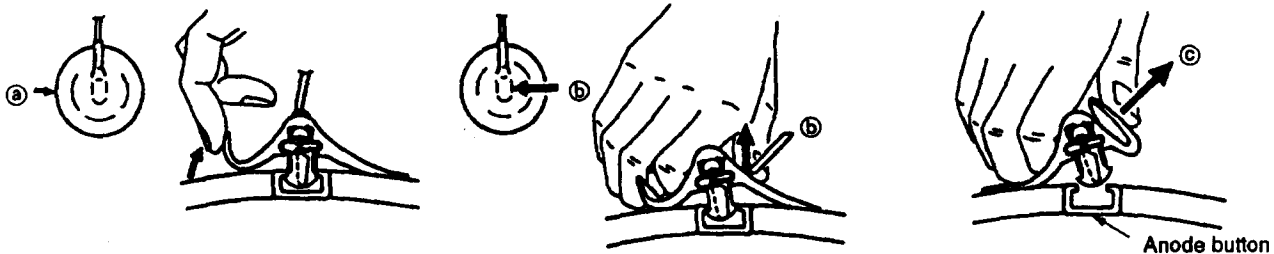


## 2-5. SERVICE POSITION

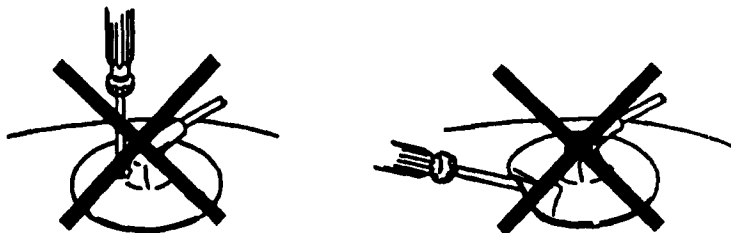
※ Remove the H bracket from the main chassis assembly and then perform the following servicing.  
(Refer to 2-2. CHASSIS ASSEMBLY REMOVAL.)



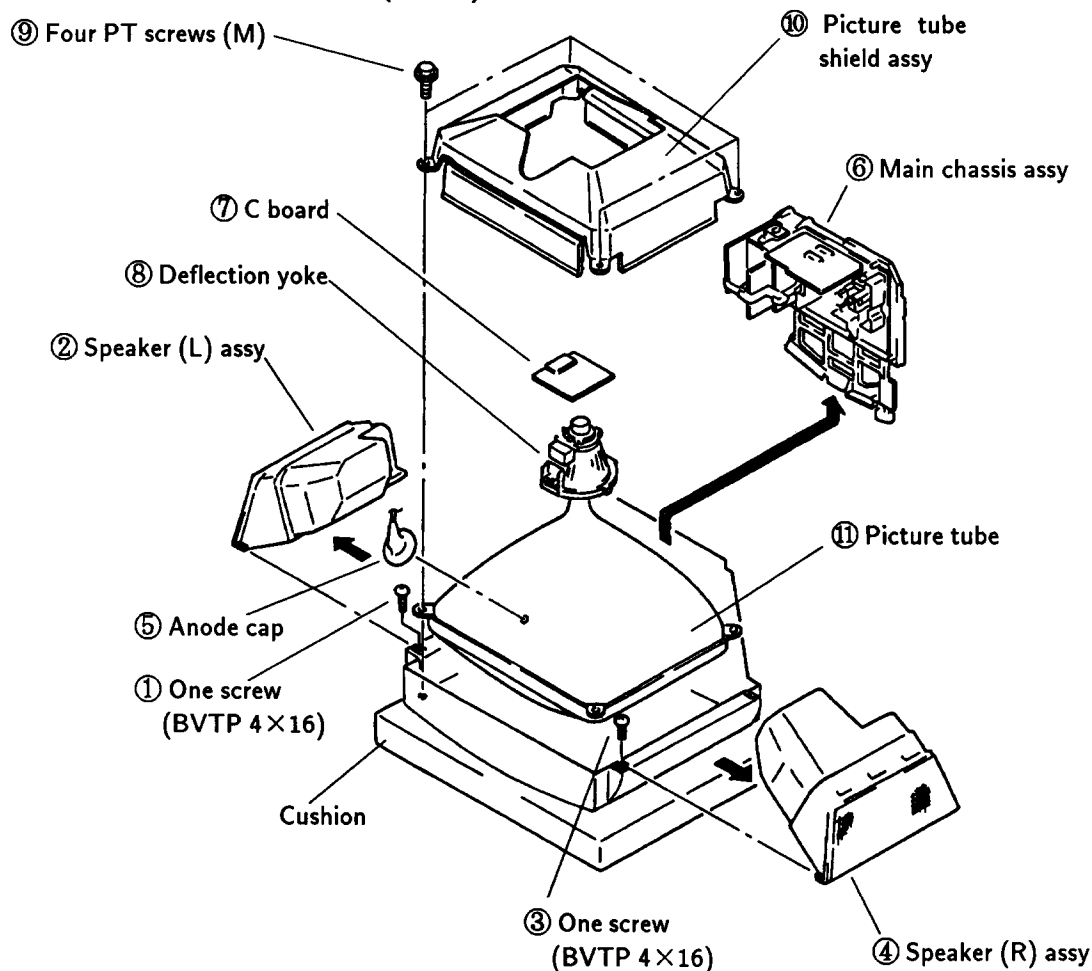


**2-6-1. PICTURE TUBE REMOVAL (21 inch)**
**• REMOVAL OF ANODE-CAP**  
**• REMOVING PROCEDURES**
**• HOW TO HANDLE AN ANODE-CAP**

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.

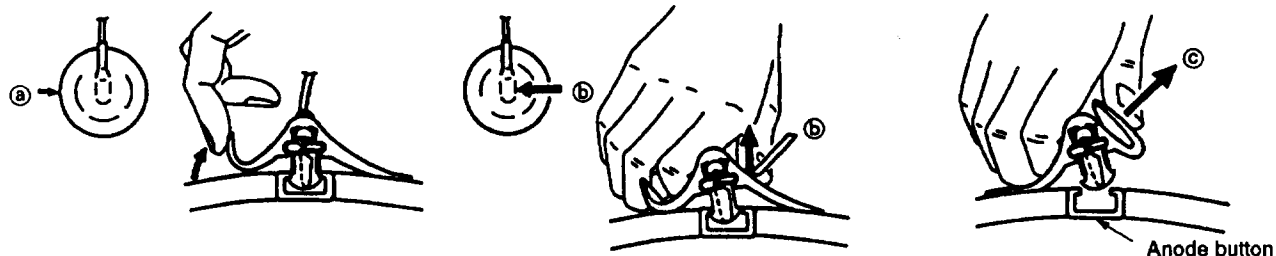


## 2-6-2. PICTURE TUBE REMOVAL (25 inch)



### • REMOVAL OF ANODE-CAP

#### • REMOVING PROCEDURES



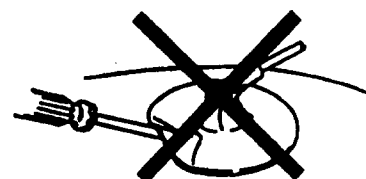
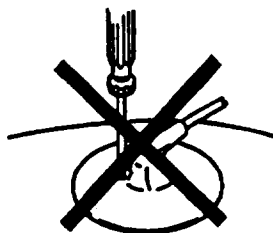
① Turn up one side of the rubber cap in the direction indicated by the arrow ①.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②.

③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ③.

#### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!  
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!  
The shatter-hook terminal will stick out or hurt the rubber.



## SECTION 3

### SET-UP ADJUSTMENTS

● The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

● These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch below should be set as follows unless otherwise noted :

● CONTRAST control ..... 80%(or Normal by commander)

⚙ BRIGHTNESS control ..... 50%

Perform the adjustments in order as follows:

#### Preparation:

● Set the side of the unit with the PICTURE TUBE so that it faces east or west in order to reduce the influence of external magnetic force.

● Turn the power switch for the unit ON and erase the magnetic force using a degausser..

#### 3-1. BEAM LANDING

Demagnetize with a degausser

1. Input a raster signal with the pattern generator.

CONTRAST } normal  
BRIGHTNESS }

2. Turn the raster signal of the pattern generator to red.

3. Move the deflection yoke backward, and adjust with the purity control so that red is in the center and blue and green are at the sides evenly.

(Fig.3-1 - 3-3)

4. Move the deflection yoke forward, and adjust so that the entire screen becomes red. (Fig.3-1)

5. Switch over the raster signal to blue and green confirm the condition.

6. When the position of the deflection yoke is determined, tighten it with a deflection yoke mounting screw.

7. When landing at the corner is not right, adjust by using the disk magnets. (Fig.3-4)

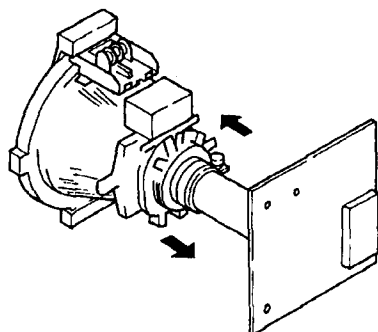


Fig.3-1

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G 2) and White Balance

**Note:** Test Equipment Required.

1. Color bar/Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter
5. Oscilloscope

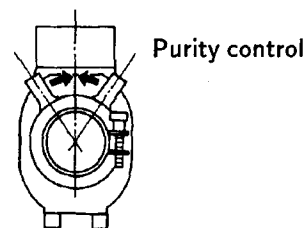


Fig.3-2

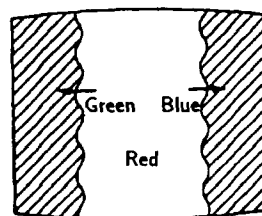


Fig.3-3

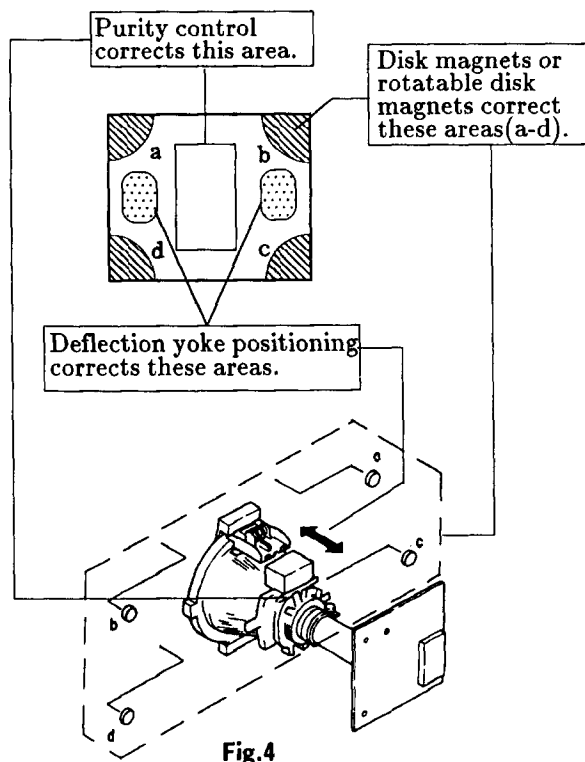


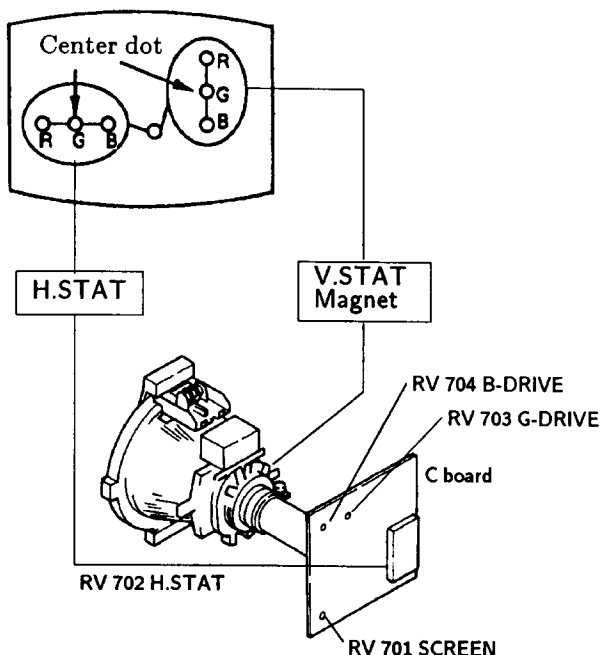
Fig.4

### 3-2. CONVERGENCE

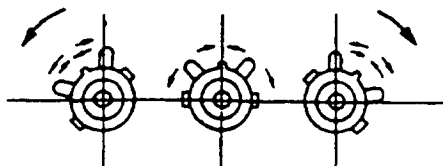
#### Preparation:

- Before starting, perform FOCUS, H.SIZE, and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in the dot pattern.

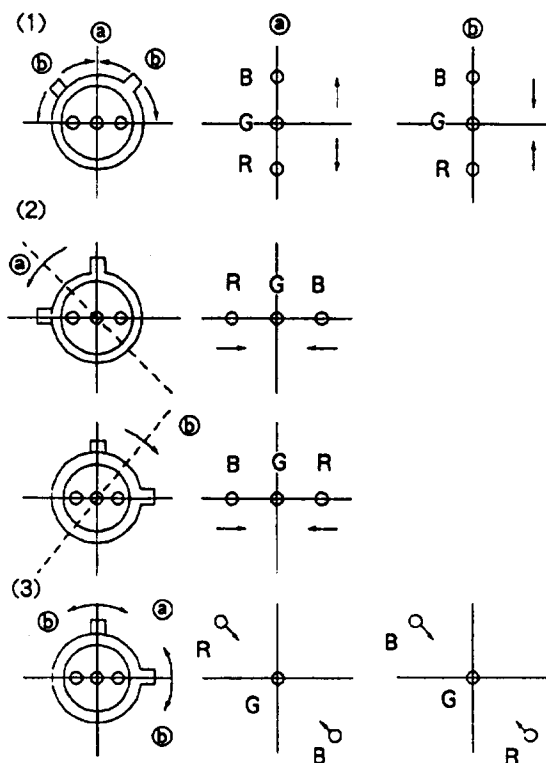
#### (1) Horizontal and Vertical Static Convergence



1. Adjust H.STAT VR to converge red, green and blue dots the in center of the screen.(Horizontal movement)
  2. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
  3. If the red, green and blue dots do not converge on the center of screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)
- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ① and ②, red, green and blue dots move as shown below.



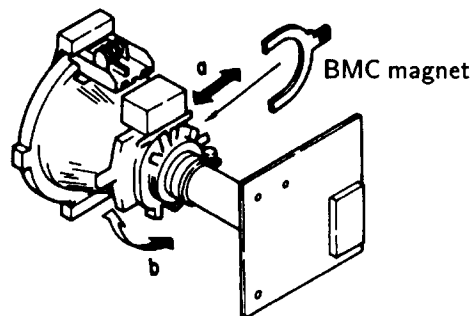
#### (21 inch only)

If the red and blue dot do not converge with green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

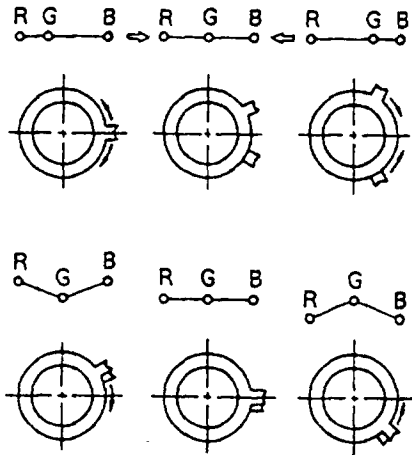
Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

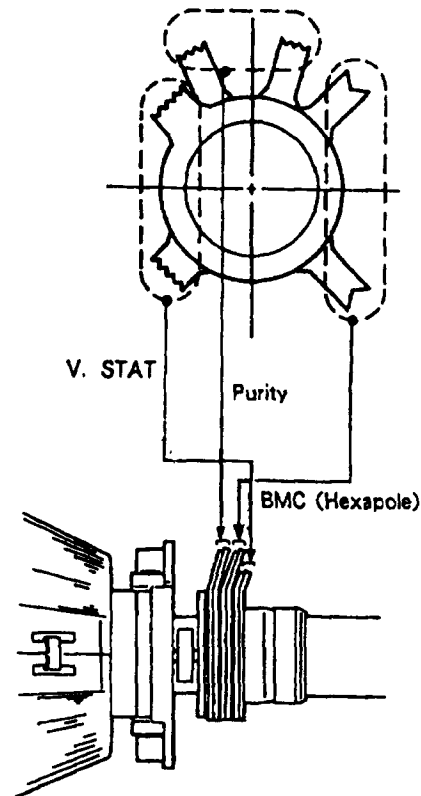


(25 inch only)

- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.  
Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

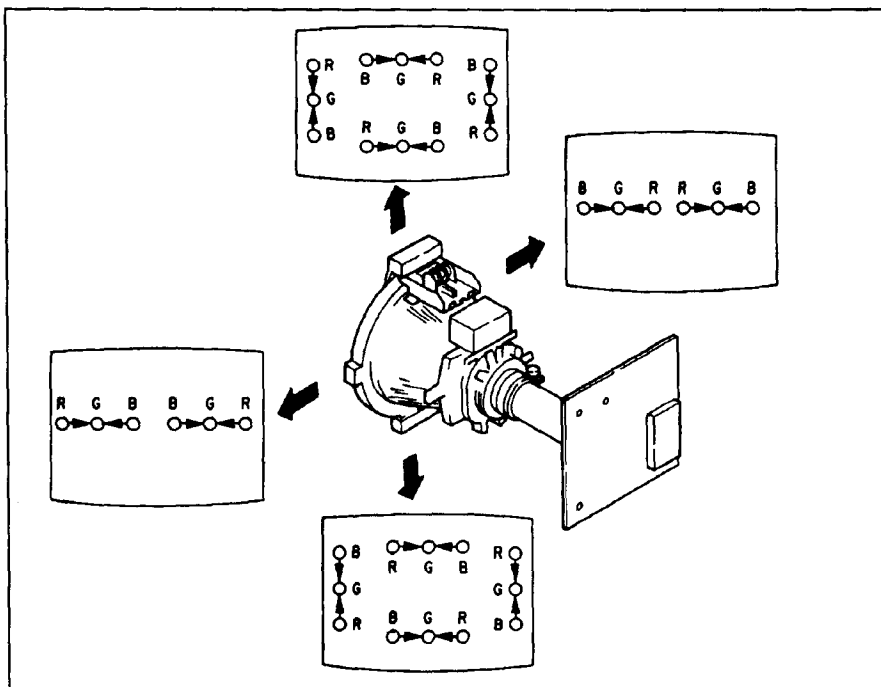
**(2) Dynamic Convergence Adjustment****Preparation:**

● Before starting perform Horizontal and Vertical static convergence Adjustment.

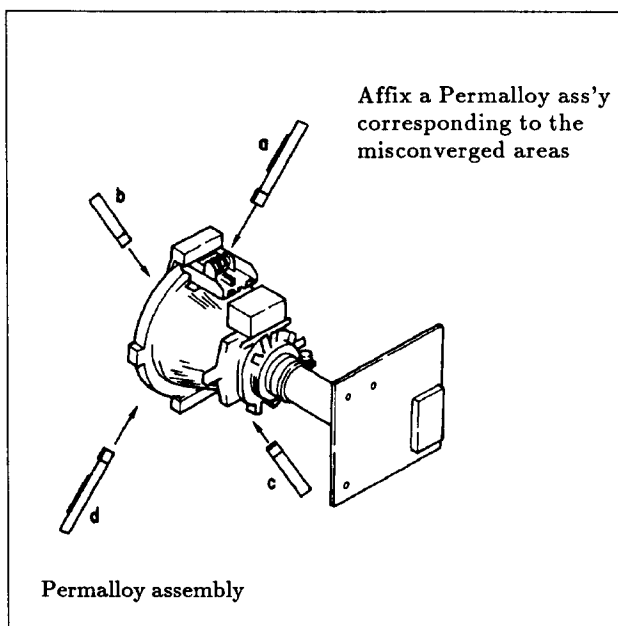
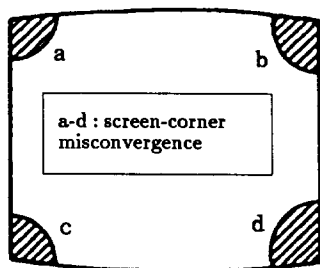
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.

3. Move the deflection yoke for best convergence as shown below.

4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

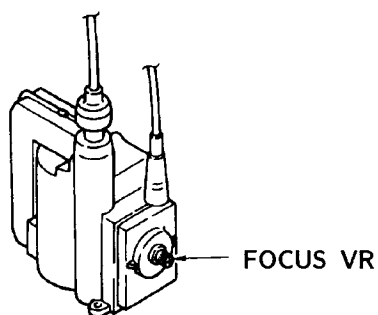


### (3) Screen-corner Convergence

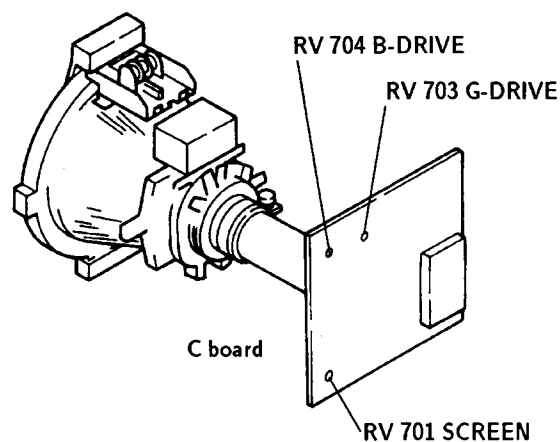


### 3-3. FOCUS

Adjust FOCUS so that the whole screen is in best focus.



### 3-4. SCREEN (G 2) and WHITE BALANCE



#### Screen (G 2) Setting

1. Input dot signal from the pattern generator.
2. Set the picture BRIGHTNESS control to minimum level.
3. Apply 170 V DC to the cathodes of R,G and B from an external power source.
4. While watching the picture, adjust the G2 SCREEN (RV701) immediately before fly-back line disappears.

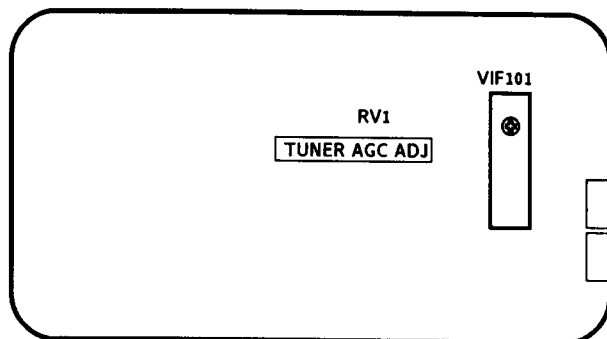
#### White Balance Adjustment

1. Input all-white signal from the pattern generator.
2. Adjust the BRIGHTNESS and COLOR controls to the standard level.
3. Adjust the following using RV 704 (B DRIVE) and RV 703 (G DRIVE)

In the following adjustments, the CONTRAST, COLOR and BRIGHTNESS controls are set to normal unless otherwise specified.

## SECTION 4 CIRCUIT ADJUSTMENTS

### 4-1. A BOARD ADJUSTMENTS

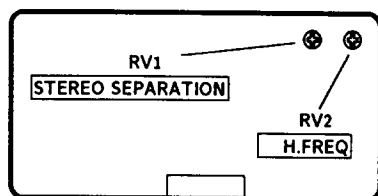


A BOARD (COMPONENT SIDE)

#### TUNER AGC ADJUSTMENT (VIF101, RV1)

1. Align with an appropriate signal between stations.
2. Adjust RV1 so that snow noise and cross modulation just disappear from the picture.

### IFG5.5S SIF



IFG5.5S SIF -component side-

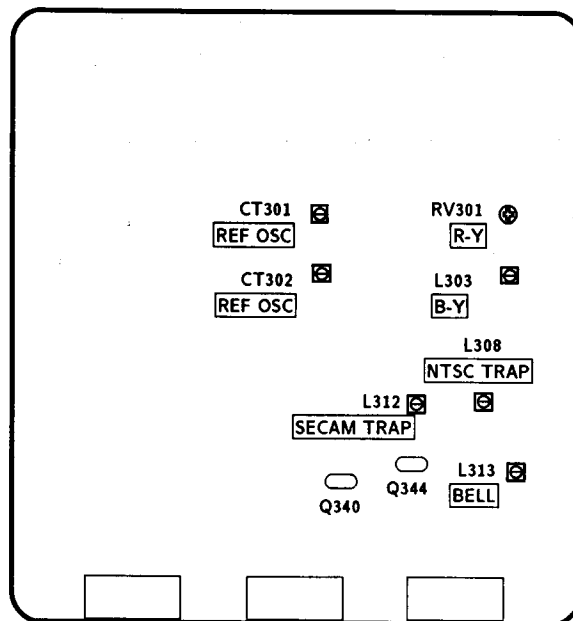
#### STEREO SEPARATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin ⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

#### H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin ⑫ IC4 and GND.
2. Connect a frequency counter to pin ④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ)  $15.625 \pm 50\text{Hz}$ .
4. After adjustment, remove the jumper.

### 4-2. B1 BOARD ADJUSTMENTS



B1 BOARD (COMPONENT SIDE)

#### REFERENCE OSCILLATOR ADJUSTMENT (CT302 8.8MHz)

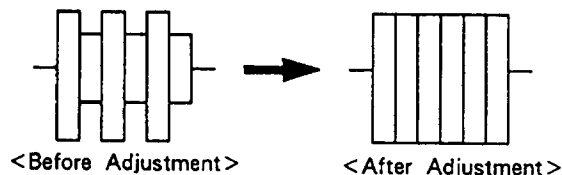
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC304.
3. Adjust CT302 to obtain synchronization.

#### REFERENCE OSCILLATOR ADJUSTMENT (CT301 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC304.
3. Adjust the CT301 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC304.

#### BELL FILTER ADJUSTMENT (L313)

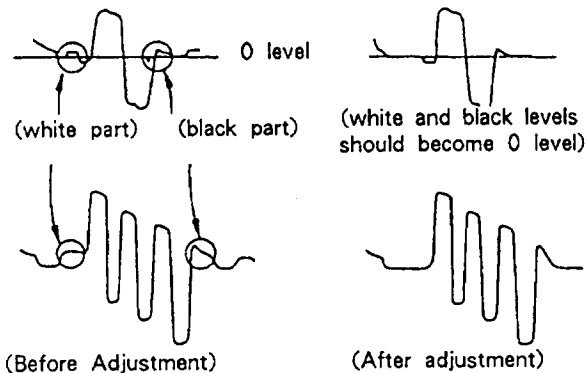
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q344.
3. Adjust L313 so that the waveform is flat.



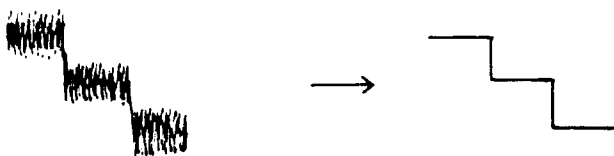


**DISCRIMINATION ADJUSTMENT  
(RV301 and L303)**

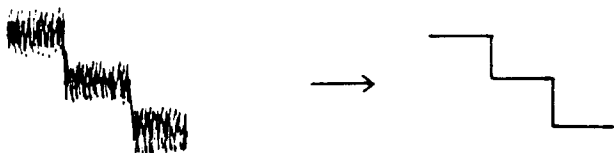
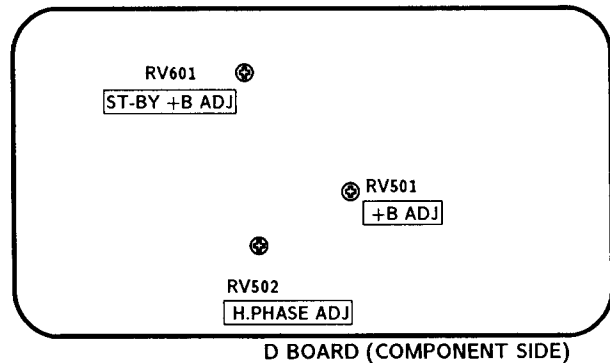
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC304.
3. Adjust RV301 until the white and black sections of the waveform at pin ① are at the 0 level.  
Connect the oscilloscope to pin ③ of IC304.
4. Adjust L303 until the white and black sections of the waveform at pin ③ are at the 0 level.

**SECAM TRAP (L312)**

1. Input a SECAM color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L312 to minimize color carrier on the Y-signal.

**NTSC TRAP (L308)**

1. Input a NTSC (3.58) color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L308 to minimize color carrier on the Y-signal.

**4-3. D BOARD ADJUSTMENTS****+B ADJUSTMENT (RV501)**

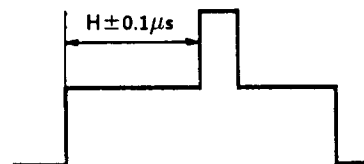
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain  $135 \pm 0.2V$ .

**ST-BY +B ADJUSTMENT (RV601)**

1. Put the system into  $\odot$  standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain  $135 \pm 3V$ .
4. Take the system out of  $\odot$  standby mode (remote commander).

**H.PHASE ADJUSTMENT (RV502)**

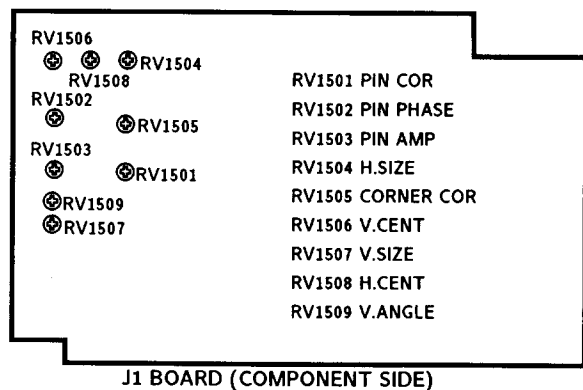
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to  $H \pm 0.1\mu s$ .



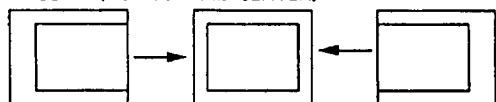
Standard of H. PHASE

Model Size	H
21 "	$5.6\mu s$
25 "	$5.1\mu s$

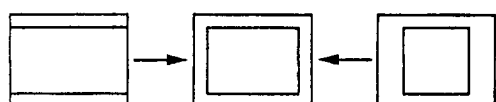
## 4-4. J1 BOARD ADJUSTMENTS



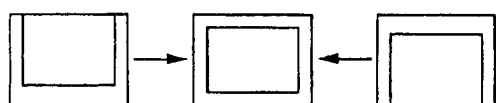
RV1508  
H. CENT (HORIZONTAL CENTER)



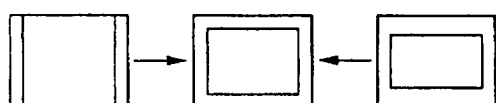
RV1504  
H. SIZE (HORIZONTAL SIZE)



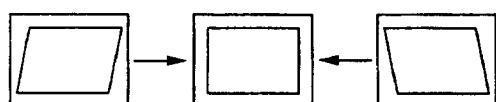
RV1506  
V. CENT (VERTICAL CENTER)



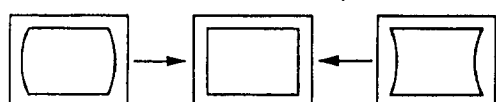
RV1507  
V. SIZE (VERTICAL SIZE)



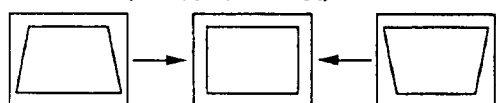
RV1509  
V. ANGLE (VERTICAL ANGLE)



RV1503  
PIN AMP (PINCUSHION AMPLIFIER)



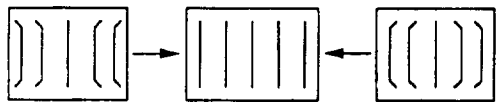
RV1502  
PIN PHASE (PINCUSHION PHASE)



RV1501  
PIN. COR (PINCUSHION CORRECT)



RV1505  
CORNER COR (CORNER CORRECT)



## 4-5. SECONDARY ADJUSTMENTS

### SUB BRIGHTNESS ADJUSTMENT

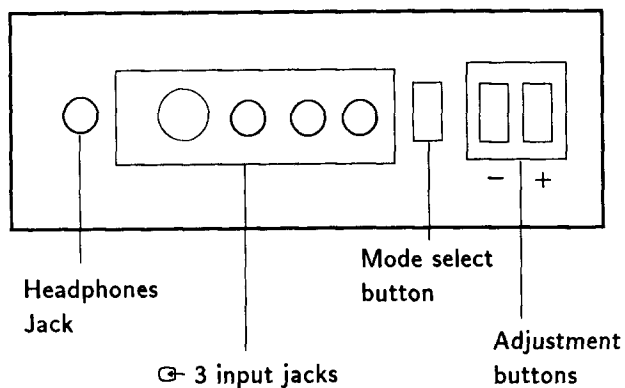
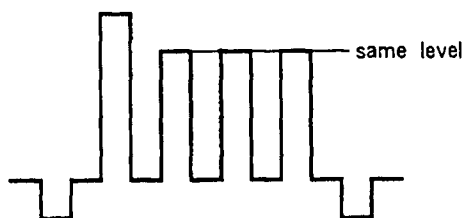
1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and - simultaneously, turn on the power. (SUB mode is obtained)
5. Minimize the contrast setting.
6. Adjust the brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the (store) button of the remote commander.  
(SUB mode is released)

If there is no test color pattern

1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.  
Set the color to its normal state.
- 3-5. Steps are the same as above.
6. Since 20 IRE is nearly blue, adjust the brightness control so that the blue barely glows.
7. Same as step 7 above.
8. Press → • ← on the remote commander to put the system into normal mode.

**SUB COLOR ADJUSTMENT**

1. Set the system to receive color bars.
2. Press  $\rightarrow \bullet \leftarrow$  on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and - simultaneously, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the  $\diamond$  (store) button of the remote commander. (SUB mode is released)

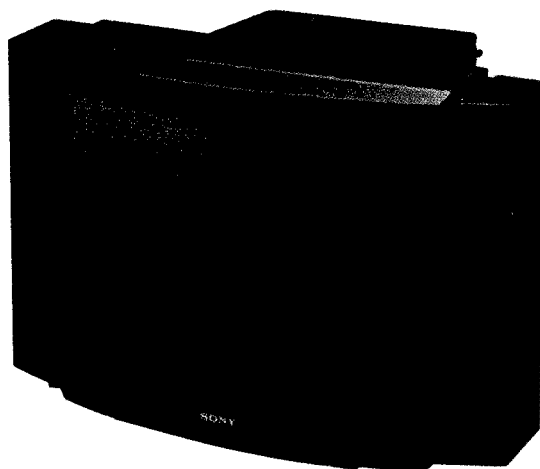


# KV-E2511D

## RM-689

# SERVICE MANUAL

*AEP Model*  
Chassis No. SCC-C98B-A



## AE-1A CHASSIS

**Note:** The service manual for RM-689 has been issued separately.

### MODELS OF THE SAME SERIES

KV-E2511D	
KV-E2911D	

### SPECIFICATIONS

Television system	B/G/H
Color system	PAL, SECAM, NTSC 3.58, NTSC 4.43 (selected automatically)
Channel coverage	See »RECEIVABLE CHANNELS AND CHANNEL DISPLAYS«
Picture tube	Trinitron tube Approx. 63.5 cm (25 inches) (Approx. 59 cm picture measured diagonally) 110-degree deflection
Inputs	<ul style="list-style-type: none"> <li>1 21-pin connector: CENELEC standard including RGB input.</li> <li>2 21-pin connector: including S video input</li> <li>3 4-pin DIN S video input connector</li> </ul> Y: 1 Vp – p ± 3 dB 75 ohm C: 0,3 Vp – p ± 3dB 75 ohms Audio input jacks: phono jack
Outputs	21-pin connector: CENELEC standard Headphones jack: stereo minijack External speaker terminals: 2-pin DIN Audio output jacks: phono jack (output dependent upon TV settings)
Sound output	30 W + 30 W (music power)
Power consumption	101 Wh
Dimensions not incl. speakers	Approx. 575 x 493 x 468.3 mm (w/h/d)
Dimensions incl. speakers	Approx. 756.6 x 493 x 468.3 mm
Weight not incl. speakers	Approx. 35.8 kg
Weight incl. speakers	Approx. 40.9 kg
Supplied accessories	RM-689 Remote Commander (1) IEC designation R 6 batteries (2)

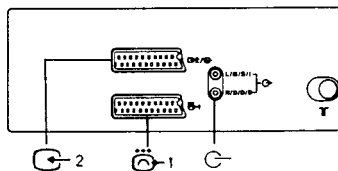
Detachable speakers (1 pair)  
Woofer (1)

Design and specifications are subject to change without notice.



TRINITRON® COLOR TV  
**SONY®**

21 pin connector (1, 2)



Pin No	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
2	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	Blue input	0.7V±3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5–12 V): Part mode Low state (0–2 V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2 nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal: 0.7V±3dB, 75ohms, positive
12	○	○	Open	
13	○	○	Ground (red)	
14	○	○	Ground (blanking)	
15	○	–	Red input	0.7V±3dB, 75ohms, positive
	–	○	(S signal) croma input	0.3V±3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1–3 V) Low state (0–0.4 V) Input impedance: 75ohms
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V±3dB, 75ohms, positive Sync: 0.3V (–3, +10dB)
20	○	–	Video input	1 V±3dB, 75ohms, positive Sync: 0.3V (–3, +10dB)
	–	○	Video Input/Y (S signal)	1 V±3dB, 75ohms, positive Sync: 0.3V (–3, +10dB)
21	○	○	Common ground (plug, shield)	

○ connected


● unconnected (open)

\* at 20 Hz–20 kHz

#### WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

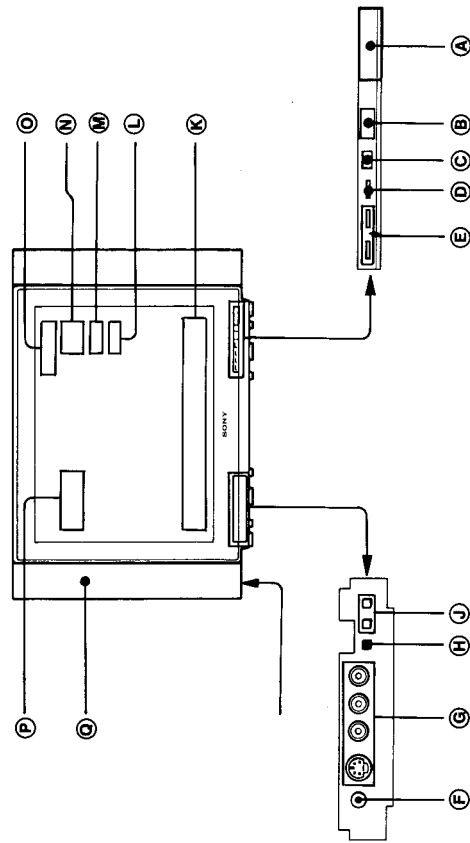
#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND  MARK ON THE SCHEMATIC DIAGRAMS ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THE SERVICE MANUAL. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THE SERVICE MANUAL PUBLISHED BY SONY.

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. GENERAL</b>			<b>4. CIRCUIT ADJUSTMENTS</b>		
1-1.	Function of Controls.....	4	4-1.	A Board Adjustments .....	17
1-2.	To Preset Channels.....	6	4-2.	B Board Adjustments.....	17
1-3.	Viewing Teletext.....	7	4-3.	V Board Adjustments.....	17
1-4.	Connecting Other Equipment.....	8	4-4.	D Board Adjustments.....	18
1-5.	How to Attach the Speakers .....	8	4-5.	J1 Board Adjustments.....	18
<b>2. DISASSEMBLY</b>			4-6.	Secondary Adjustments .....	19
2-1.	Rear Cover Removal.....	9	<b>5. DIAGRAMS</b>		
2-2.	Chassis Assy Removal.....	9	5-1.	Block Diagram .....	19
2-3.	A, J1 Boards Opening and F1 Board Removal.....	9	5-2.	Circuit Boards Location .....	24
2-4.	V, B and Y Boards Removal.....	10	5-3.	Schematic Diagrams and Printed Wiring Boards .....	25
2-5.	Picture Tube Removal.....	10	5-4.	Semiconductors.....	47
2-6.	Service Position .....	11	<b>6. EXPLODED VIEWS</b>		
<b>3. SET-UP ADJUSTMENTS</b>			6-1.	Chassis .....	48
3-1.	Beam Landing.....	12	6-2.	Picture Tube.....	49
3-2.	Convergence.....	13	6-3.	Speaker (L, R Woofer).....	50
3-3.	Focus .....	15	<b>7. ELECTRICAL PARTS LIST</b> .....		51
3-4.	White Balance.....	16			

# SECTION 1 GENERAL

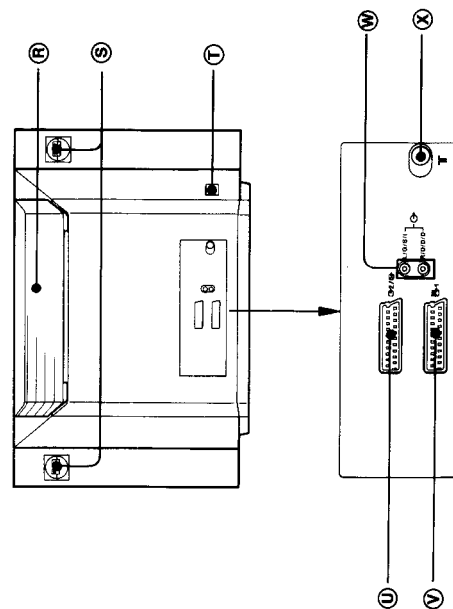


## ON THE SET

- A Power Switch** Use it to switch the set on and off. When you switch the set on, the programme number of the station tuned in will be indicated in the on-screen display for some seconds. In case of short breaks of operation, you can switch the set on and off using the Remote Commander (See «CONTROLS ON THE REMOTE COMMANDER»).
- B Remote control detector** (See «CONTROLS ON THE REMOTE COMMANDER»).
- C Standby/Response indicator** This indicator lights up when the TV set is in standby mode and it flashes each time the set receives signals from the Remote Commander.
- D Noise reduction indicator** This indicator lights up when noise reduction has been activated by pressing button on the Remote Commander.
- E Stereo A/B indicators** During bilingual programmes one of the two indicators lights up, depending upon the selected channel **A** or **B**. When stereo programmes are broadcast both indicators light up. (See «CONTROLS ON THE REMOTE COMMANDER»).

## Jacks and control panel

- The jacks and the control panel are situated behind a cover. Please press the arrow marking on the cover to open it.
- F Headphones jack (stereo minijack)** Connect only stereo headphones.
  - G Input jacks** (Y/C input) connector (4-pin) 3 (yellow) Video input jack (phono jack) 3 (yellow) Audio input jacks (phono jacks) L/G/S/I and R/D/D/D (red and white).
  - H Mode select button** Use this button to select either the programme tuning mode, volume adjustment or the input mode.
  - I Adjustment buttons +/-** Select at first the item to be adjusted using the Mode select button **P** (programme tuning mode), (volume) or (input mode), then adjust the item by pressing the + or - button. You can also use these buttons to reset the picture and sound adjustments to the factory-set levels. For this purpose press both buttons simultaneously.



**On-screen display**  
When you press button on the Remote Commander, the following information will be indicated on the screen:

**K Picture and sound adjustment items:**  
 contrast, colour, brightness, hue (only for NTSC), sharpness, bass, treble or balance and the respective levels, as well as mute, reset, space sound and loudness indications, when the respective buttons are pressed.

When you press button on the Remote Commander, the following information will be indicated on the screen:

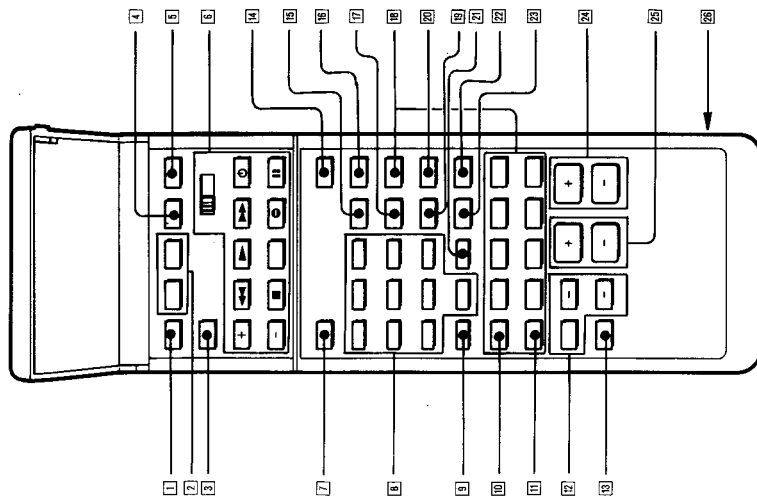
- L TV-System: B/G**
- M Channel number**
- N Programme number or input mode;** 1, 2, 3 or 3;
- O Indication of the station name**
- P AV output indication; 1** 2 3 or TV (see «CONTROLS ON THE REMOTE COMMANDER»).

## Speakers

See «HOW TO ATTACH THE SPEAKERS ».

## Connectors on the rear

- R Woofer**
- S Terminals for connecting the woofer**
- T Terminals for the right and left speakers**
- U Euro-AV-connector 21-pin** For connecting a VTR, 8 mm video camera recorder, a video disc player or in general devices with an S-Video-output.
- V Euro-AV-connector 21-pin** For connecting a VTR, a video disc player, a computer ecc.,
- W Audio-output-jacks (phono jacks)** For connecting audio equipment, e.g. an amplifier, so that the sound will be output at the audio equipment. In this case the volume is adjustable on the TV set.
- X Aerial terminal**



## ON THE REMOTE COMMANDER

On the set there is a Remote Control detector (B), which receives the signals of the Remote Commander.

1 **Preset-button** Used for selecting the Preset mode. See »TO PRESET CHANNELS«;

2 **Tuning +/- buttons**  
a) Preset mode: Used for tuning in stations in the Automatic Station Search; See »TO PRESET CHANNELS«;  
b) TV-mode: Used for fine-tuning a station. See »ADDITIONAL FUNCTIONS«;

3 **C.. button (Clear)**  
Used for clearing programme positions, so that the position will be skipped when the PROG +/- buttons [24] are pressed. See »TO PRESET CHANNELS«.

4 **Store button:** Used for storing channels. See »TO PRESET CHANNELS«;

5 **TV-system-select-button**  
This button has no function;

6 **Video selector and video operation buttons**  
Used for operating Sony video equipment. For details see »CONNECTING OTHER EQUIPMENT«;

7 **Mute button**  
By pressing this button the sound of the set will be switched off and by pressing it once more the sound will be restored.

8 **Number buttons**  
a) Used to select programme positions or to input channel numbers (in the preset mode).  
b) If the set is in the standby mode, press one of the number buttons to switch it on.  
c) After pressing the Output select button [17] the buttons 1-3 can be used to select the different Output connectors.

9 **+/- Button**  
In case of two digit numbers, press first this button and then the two respective number buttons [2].

10 **Button for On-screen display**  
By pressing this button information about the station tuned-in will be indicated on the screen. The indications will disappear after some seconds with the exception of the programme number, which will stay on the screen until the button is pressed once again.

11 **Time button** <sup>①</sup>  
In TV-mode: If teletext service is broadcast on the selected channel, press this button to display the current time on the screen and once again to make it disappear.

12 **+/- Buttons for picture and sound adjustments**  
a) **TV-mode:**  
The picture and sound adjustments are stored as standard values. You have, however, the possibility to change them to your individual liking. Press the button repeatedly until the required item is indicated in the on-screen display:  $\odot$  contrast,  $\odot$  colour,  $\odot$  brightness,  $\odot$  hue (only for NTSC colour system),  $\odot$  sharpness,  $\odot$  bass,  $\odot$  treble or  $\odot$  balance. You can adjust the settings by pressing the + or - button.  
b) **Preset-mode:** Use these buttons to name a station. See »TO PRESET CHANNELS«;

13 **Reset-button**  
By pressing this button the picture and sound adjustments are reset to the factory-set levels.

14 **Standby-button**  
Press this button to switch the set into standby-mode. You can switch it on again by pressing the TV-button [16] or one of the number buttons [8]. To return to the teletext mode, press the  $\odot$  button. There will be a slight delay before the picture is restored.

## Note

Use the Standby-button [14] only when switching the set off for a short period of time. If the set will not be used for a longer span of time, switch it off by using the Power switch (A).

15 **Input-Select-Button**

Press this button to select the audio- or video-signals input at the various input connectors. With each pressing of the button a different connector is selected. The following indications will appear sequentially:

$\odot$  1  $\rightarrow$   $\odot$  (RGB)  $\rightarrow$   $\odot$  2  $\rightarrow$   $\odot$  3  $\rightarrow$   $\odot$  3

TV-mode

16 **TV-Button**

When pressing this button the set returns from standby, video input- or teletext mode to the TV-mode.

17 **Output-Select-Button**

Press this button to select the audio- or video signals to be output at the  $\odot$  connector. First press this button, then select the desired signal source using the number buttons [8] (either 1, 2 or 3) or the TV-button [16] (if the signals which are on the screen are to be output).

18 **Teletext operation buttons**

These buttons are used for teletext operation. See »VIEWING TELETEXT«.

19 **Loudness button**

By pressing this button the high and low tones will be emphasized. Press the button again to restore the normal sound. The indications on the screen will be  $\odot$  or  $\odot$ .

20 **A/B button**

To select the channel of bilingual programmes. Usually the synchronized version is broadcast on channel A and the original sound is broadcast on channel B. In the video input mode (Euro-AV-connectors) this possibility of selecting channels also exists.

21 **C (Channel select) button**

Use this button for direct channel tuning in the TV-mode. See »ADDITIONAL FUNCTIONS«.

22 **Noise reduction button**

Press to reduce the noise on the picture. The Noise reduction indicator  $\odot$  lights up. Press the button again to restore the normal picture.

23 **Space sound button**

Press this button to obtain special acoustic effects. Press it again to restore the normal sound. The indications on the screen will be  $\odot$  or  $\odot$ .

24 **PROGR +/- buttons**

TV-mode: Use these buttons to scan the available programmes up- or downwards.  
Preset mode: Use these buttons to scan the available channels up or downwards.

25 **+/- buttons for adjusting the volume**

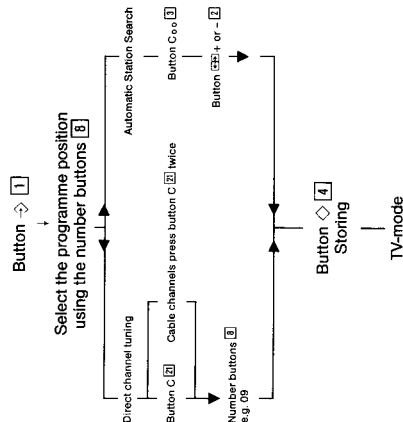
26 **Battery compartment (on the rear)**



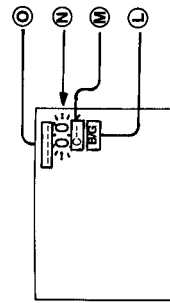
## 1-2. TO PRESET CHANNELS

Use the buttons on the Remote Commander for presetting. In total there are 60 programme positions at your disposal for storing channels. There are two different ways of tuning in channels:

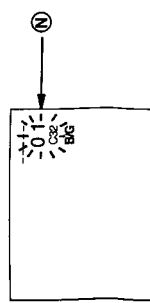
- 1. Direct Channel Tuning**  
You know the channel number of a station and can input it directly.
- 2. Automatic Station Search**  
The set searches automatically for stations (including cable channels).



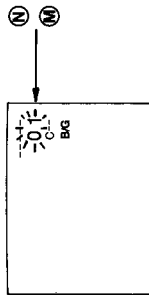
- 1. Direct Channel Tuning**  
1. Press the Preset button  $\diamond$  1. You are now in the preset mode of the set. The programme number in the on-screen display  $\odot$  starts blinking.



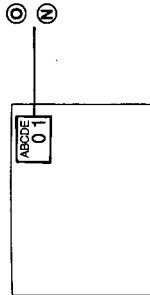
- With the buttons PROG  $\diamond$  2 or the number buttons 8 you can select the programme position. In case of two-digit numbers, press first the button  $\diamond$  2 and then the two number buttons.



- Press button C 2. The indication  $\diamond$  C and the channel number start blinking in the display  $\odot$ . Select the channel number with two digits (e.g. 04) using the number buttons 8.



- If you want to select a cable channel press button C 2. In this case the indication  $\diamond$  S will appear in the display  $\odot$ . Select the channel number as described above.
- Press the button  $\diamond$  4 in order to store the channel and to return to the TV-mode.



If you want to store further channels, repeat the steps 1 to 4.

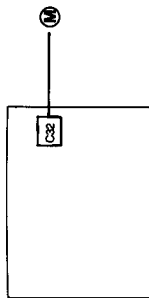
### 2. Automatic Station Search

- Press button  $\diamond$  1. You are now in the preset mode of the set. The programme number in the on-screen display  $\odot$  starts blinking.
- With the PROG buttons  $\diamond$  2 or the number buttons 8 you can select the programme position. In case of two-digit numbers, press first button  $\diamond$  2 and then the two number buttons.
- If there is already a stored station on the selected programme position, press button C  $\diamond$  3.
- Press one of the tuning buttons  $\diamond$  2 to start the station search. The search will be interrupted as soon as a station is tuned in. Press the tuning buttons repeatedly until you find the desired station.
- If you have found the desired station, press button  $\diamond$  4. Now the selected station is stored and you are back in the TV-mode.
- If you want to store further stations, repeat the steps 1-5.

## ADDITIONAL FUNCTIONS

**Direct Channel Tuning in the TV-mode**  
You have the possibility to tune in channels directly when the set is in the TV-mode without storing these channels. Example: You tune in channel number 32. If you switch the set off or change the programme position, this channel will be cancelled.

- Press the button C 2. In the display  $\odot$  the indication  $\diamond$  C will appear. For cable channels press the button C 2 twice. On the screen  $\diamond$  S will be displayed.
- Select the channel number with two digits using the number buttons 8 (e.g. for channel 4 press first 0, then 4). The indication on the screen will disappear within some seconds.



### Manual Fine Tuning

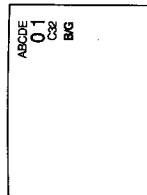
If the reception of a channel is not satisfactory, you have the possibility to deactivate the Automatic Fine Tuning, which is usually in operation during presetting in order to tune in the best possible picture. Press one of the tuning buttons  $\diamond$  2 to fine-tune a channel. The Automatic Fine Tuning will be restored when the respective programme position is pressed once again.

### Auto shut off-Function

The TV set automatically goes into standby-mode some time after the transmission on a channel is finished.

### Notes

- If you press the preset button  $\diamond$  1 instead of button  $\diamond$  4 the set will return to the TV-mode without storing the channels.
- If you press a wrong programme or a channel number, an  $\diamond$  S will be displayed on the screen.
- When pressing two number buttons, the second number button should be pressed within 5 seconds after the first one, otherwise the operation will be cancelled.



## 1-3. VIEWING TELETEXT

To view the teletext service, use the Remote Commander. The buttons for teletext operation are indicated in green.

### Operation

- 1 Select the TV channel for the desired teletext service. When the signal is weak, teletext errors often occur.
- 2 Press (TEXT/MIX) to display the teletext service.
- 3 Key in the three digits of the desired page using the number buttons. If an error is made, complete the three-digit sequence by keying in any digit. Then, re-enter the correct page number.

The requested teletext page is displayed.

To return to the TV mode, press TV on the Remote Commander.

### To request the index page

Press (INDEX). If the necessary signal is not being broadcast, page 100 is displayed.

### To access the next or preceding page

Press (PAGE +) or (PAGE -).

### To superimpose the teletext display on the picture

Press twice from the TV mode. Press again to return to the TEXT display.

### To suppress the teletext display so that the TV picture is displayed

Press (TEXT CL). This button can be operated from both the TEXT and MIX displays.

### To prevent a teletext page from being updated/changed

Press (HOLD). The HOLD symbol appears on the screen. To resume normal teletext reception, press (TEXT/MIX).



To resume normal teletext reception, press (TEXT/MIX).

### To enlarge the teletext display

Press once to enlarge the upper half of the display; press again to enlarge the lower half of the display. And press again to return to the normal display.

### To reveal concealed information such as answers to a quiz

Press (REVEAL). Press again to conceal the answers.

The teletext service can be displayed directly from the standby mode by pressing (TEXT/MIX).

### To receive the teletext service of a different TV channel

- 1 Press TV to return to the TV mode.
- 2 Select the desired TV channel.
- 3 Press (TEXT/MIX).

### Note

Buttons not referred to in the text do not operate.

### To watch the TV programme while waiting for a requested page to be displayed

- 1 Request the new page.
  - 2 Press to watch the TV programme.
- The requested page number and other data appear at the top of the screen. When the requested page has been captured, the page number is displayed in the top left hand corner of the screen.



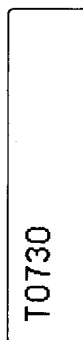
To view this page, press (TEXT/MIX).

### To have a requested page displayed at a pre-determined time

- 1 Request a time coded page (e.g. alarm page).
  - 2 Press (TP ON).
- "1 \*\*\* " will appear at the bottom of the screen.



- 3 Enter your request time with the number buttons, using four digits. For example, 07 30.



To watch the TV programme until the requested time, press (TEXT CL). At the requested time, the page number will be displayed at the bottom of the screen.

To view this page, press (TEXT/MIX). To cancel the request, first ensure that the teletext page is displayed, then press (TP OFF).

### To view the input picture

Press the button repeatedly until the desired input signal indication appears on the screen.

1: to view the audio and video signal input through the 1 connector on the rear.

2: to view the RGB signal (i.e. from a computer, etc.) input through the 2 connector.

3: to view the audio and video signal input through the 3 connector on the rear.

4: to view the S video signal (from a VTR equipped with an S video output) input through the 4 connector.

5: to view the audio and video signal input through the 5 connectors and the audio input jacks 5 (yellow, white and red) on the front.

6: to view the S video signal input through the 6 connectors on the front (4-pin connector and white and red phone jacks).

You can also select the desired input mode using the buttons on the front of the set. Select the mode with the mode select (P → → ) button then press +/- button.

To return to the TV mode, press the TV-button.

### To select the signal to be output from the 2/ 3 connector

Press the 2-button 2, then 1, 2, 3 or the TV-button while 2 is displayed, so that one of the following indications is displayed:

1 2: The audio and video signal input through the 2 connector is output from the 2/ 3 connector.

2 3: The audio and video signal input through the 3 connector is output from the 2/ 3 connector.

3 4: The audio and video signal input through the 4 connectors is output from the 2/ 3 connector.

TV : The audio and video signal input through the aerial terminal (i.e. usually the TV signal) is output from the 2/ 3 connector.

The indication will disappear after a few seconds.

### Note

The TV-signal is always output at the EURO-AV connector 1.

**To operate a Sony video equipment**  
The video operation buttons on the Remote Commander can operate the VTRs and video disc players manufactured by Sony.

1. Switch the video selector to the desired position.  
**VIDEO 1:** to operate Sony Betamax VTR and SLV 202 VHS.  
**VIDEO 2:** to operate Sony 8mm VTR.  
**VIDEO 3:** to operate Sony VHS VTR.  
**MDP:** to operate Sony video disc player including a multi disc player.

2. Press the operation button(s) to start operation.  
PROGR +/-: to select the desired programme on the VTR.

: to rewind the tape or to rapidly go back to the desired position on the disc

: to start playback

: to advance the tape or the disc rapidly to the desired position

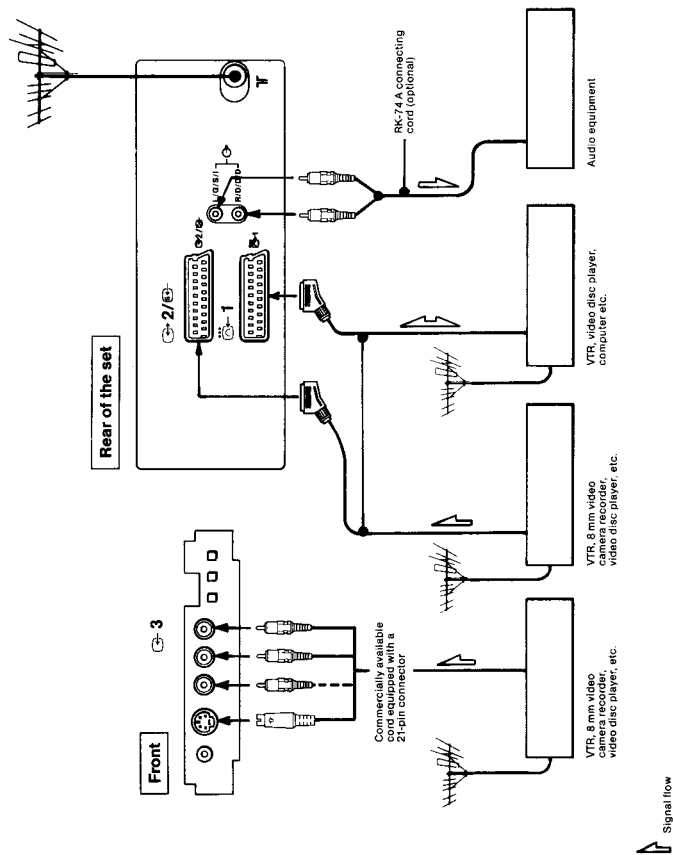
: to stop the tape or the disc, or to release the pause mode

: to start recording on the VTR  
Be sure to press this button and the one on the left simultaneously

: to switch the video equipment on and off

: to stop the tape or the disc temporarily (pause)

#### 1-4. CONNECTING OTHER EQUIPMENT



- Connect the S video output of the VTR, etc. here.
- To connect S video connectors (4-pin DIN), use an optional YC-15/YC-15 EV connecting cable.

#### Notes

- It is also possible to connect a VTR using the 17 terminal. In this case, connect the aerial to the aerial terminal of the VTR.
- Move the VTR away from the TV if the picture or the sound is distorted.
- Computers which have RGB output only can be connected to the 1 input connector.

**S video input (Y/C input)**

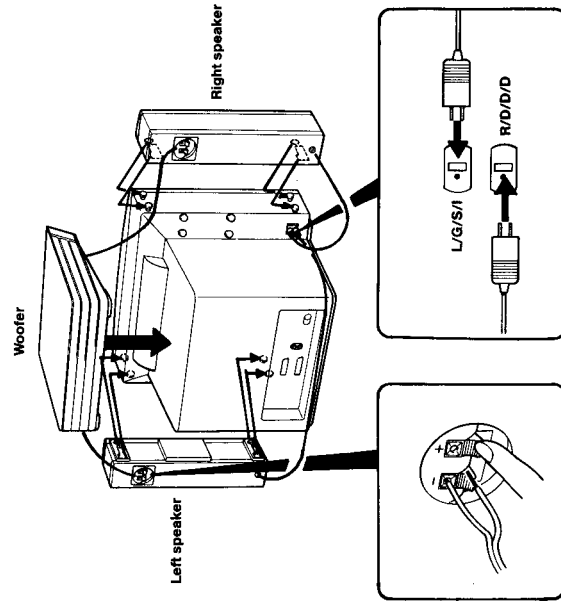
Video signals may be separated into Y (luminance or brightness) and C (chrominance) signals. Usually these two signals are combined in a VTR and output as one signal, and supplied to a TV. Separation of the Y and C signals prevent them from interfering with one another, thereby improving picture quality (especially in luminance). This set is equipped with two S video input jacks through which these separated signals can be input directly. Connect one of the two S video output jacks on the VTR to the S video input on this set.

#### 1-5. HOW TO ATTACH THE SPEAKERS

	KV-E2511 D
1	Place the woofer on the rear cover of the set.
2	Attach the right and left speakers on the sides of the set.
3	Connect the speaker cords of the woofer to the speaker terminals on the right and left speakers: connect the black cord to the - (black) terminal and the white cord to the + (red) terminal.
4	Connect the left speaker cord to the L/G/S/I terminal and the right speaker cord to the R/D/D/D terminal on the rear of the TV set.

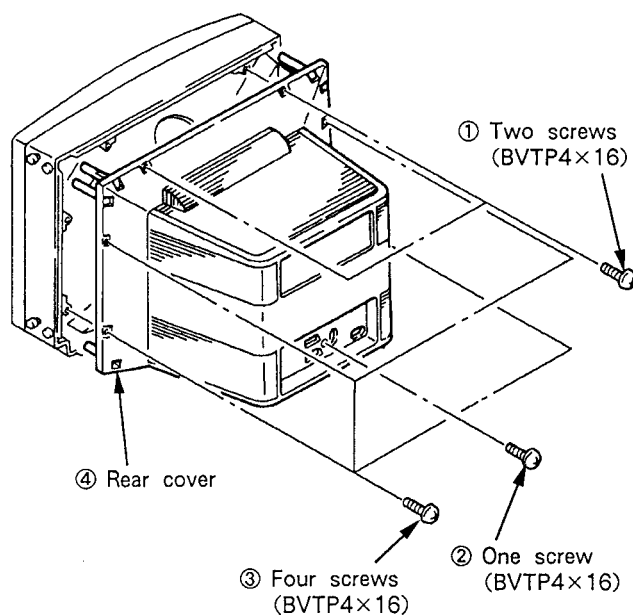
#### Note

Make sure that the set is turned off when you install the speakers.

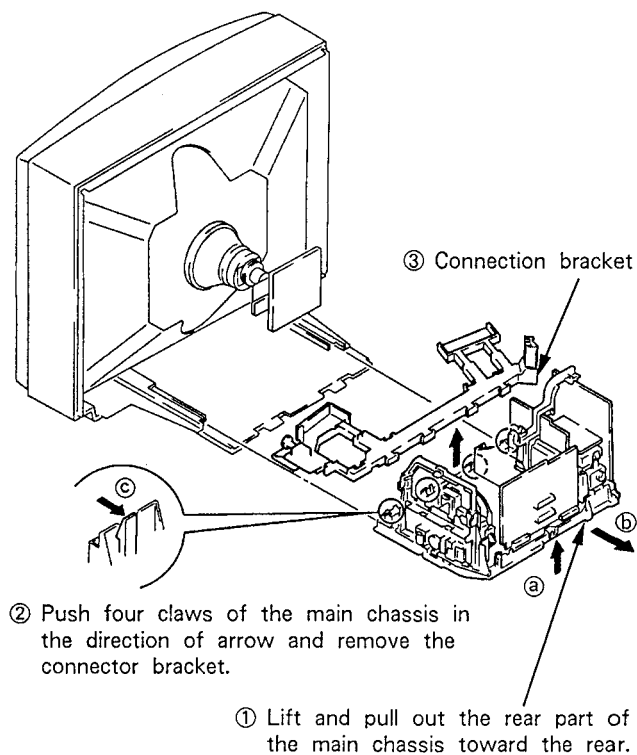


## SECTION 2 DISASSEMBLY

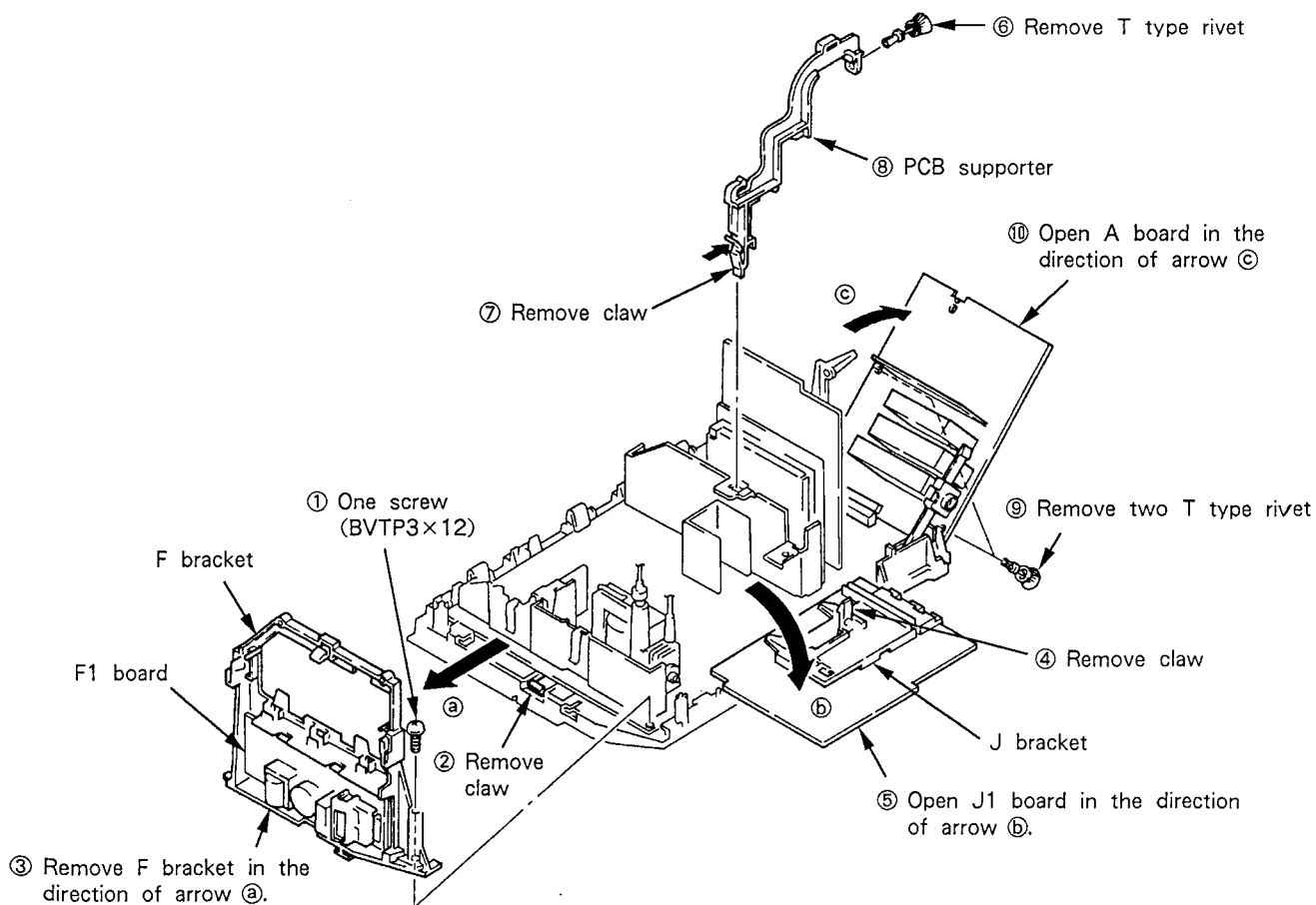
### 2-1. REAR COVER REMOVAL



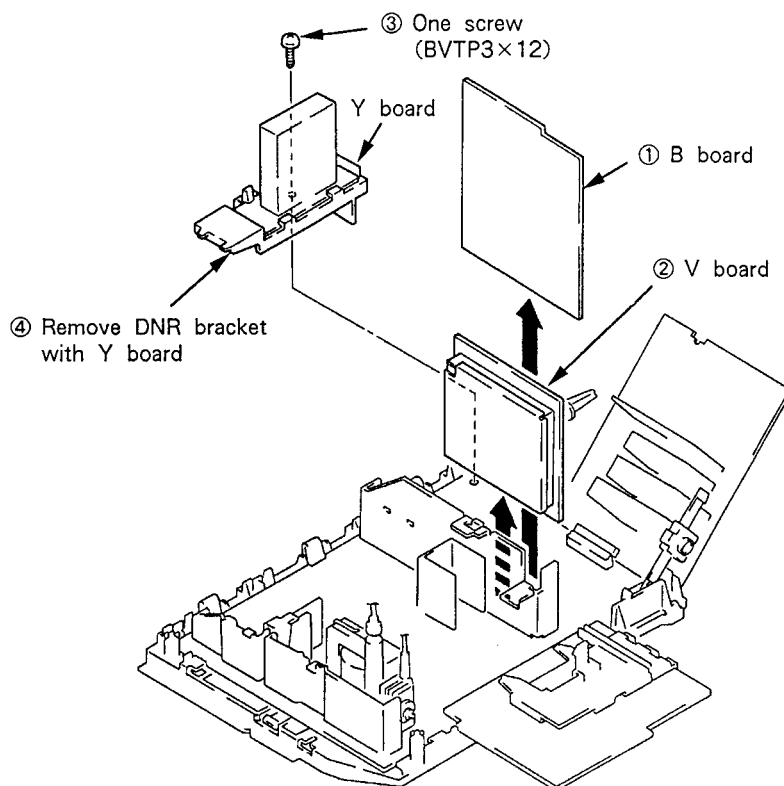
### 2-2. CHASSIS ASSY REMOVAL



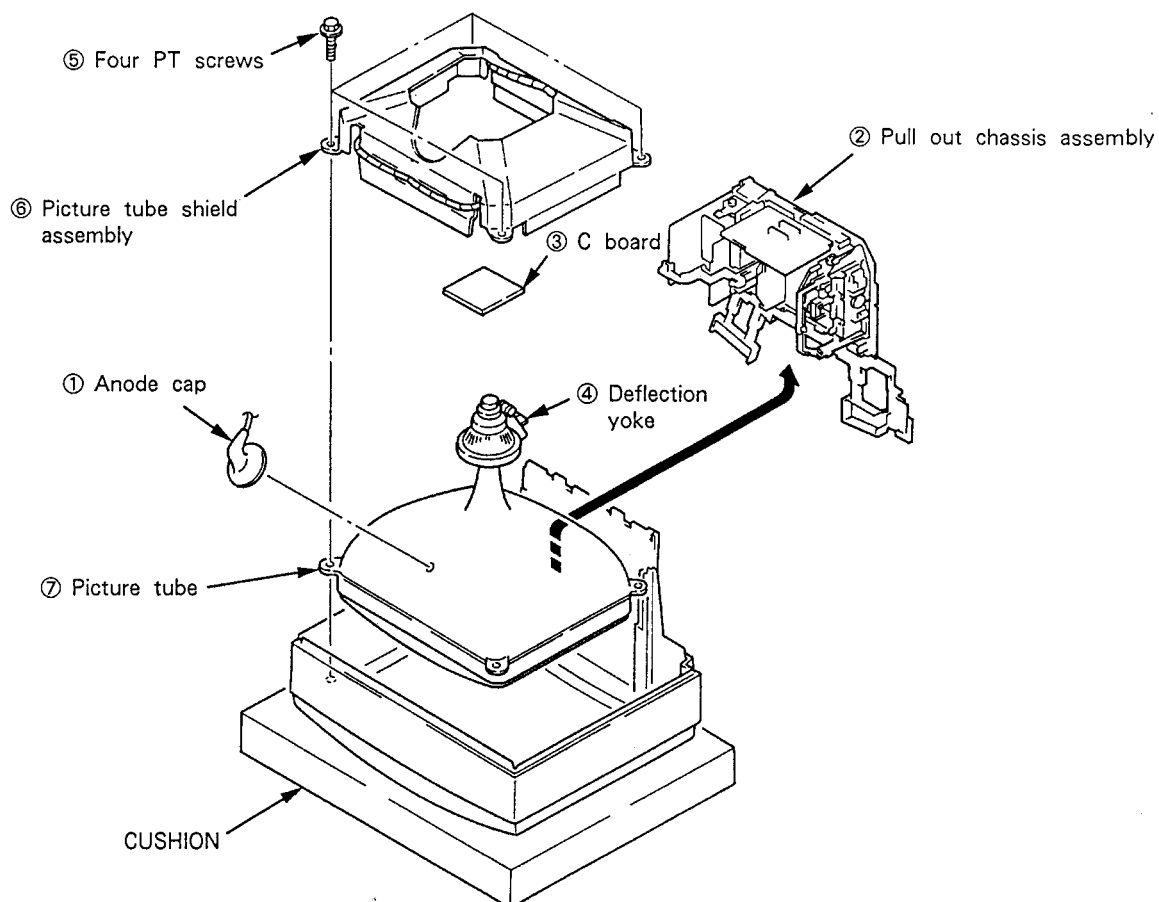
### 2-3. A, J1 BOARDS OPENING AND F1 BOARD REMOVAL



## 2-4. V, B AND Y BOARDS REMOVAL

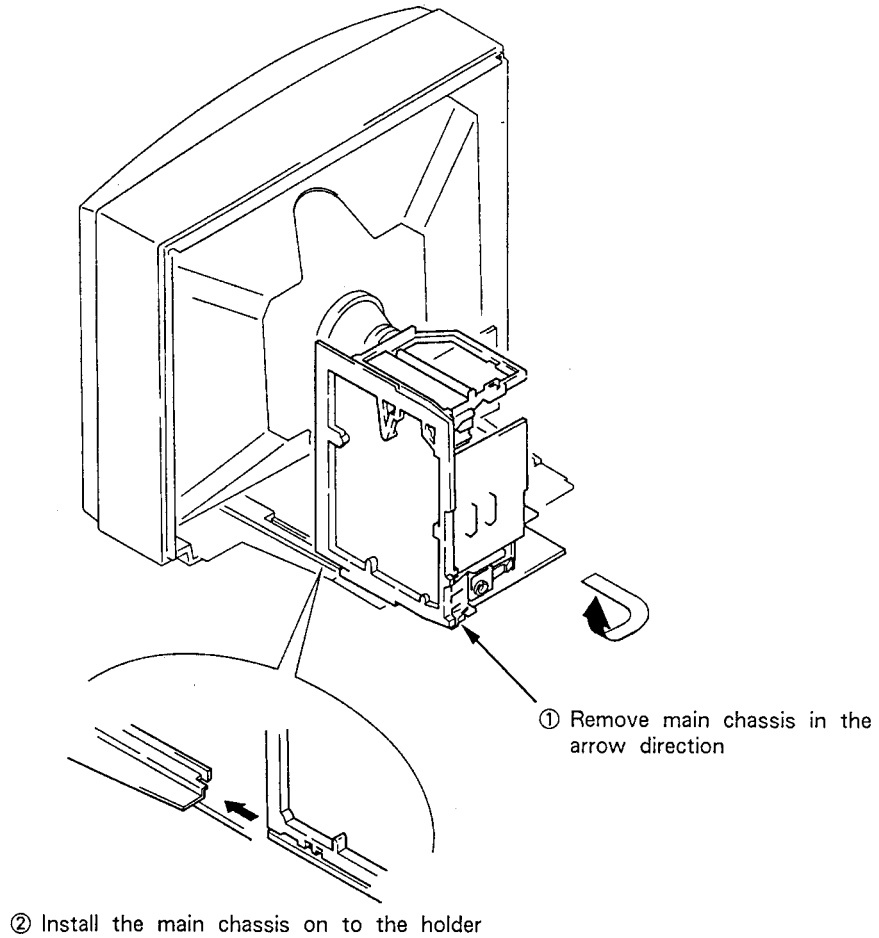


## 2-5. PICTURE TUBE REMOVAL

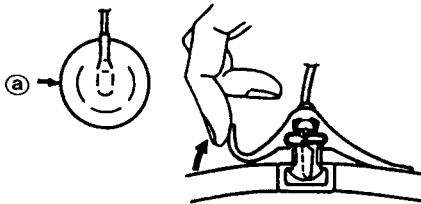


## 2-6. SERVICE POSITION

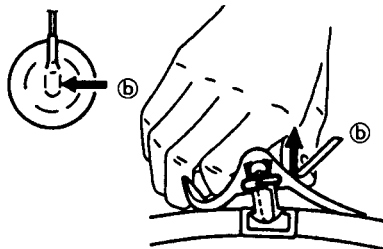
\*Remove the connector bracket and then perform the following servicing (refer to 2-2, CHASSIS ASSEMBLY REMOVAL).



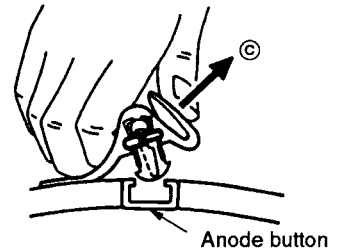
### • REMOVAL OF ANODE-CAP • REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow (a).



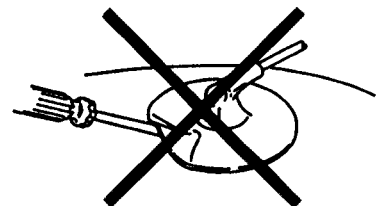
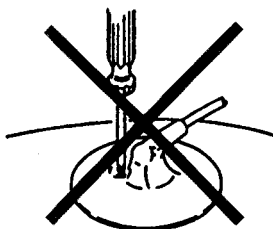
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow (b).



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow (c).

### • HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material !
- ② Don't press the rubber hardly not to hurt inside of anode-caps !  
A metal fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly !  
The shatter-hook terminal will stick out or hurt the rubber.



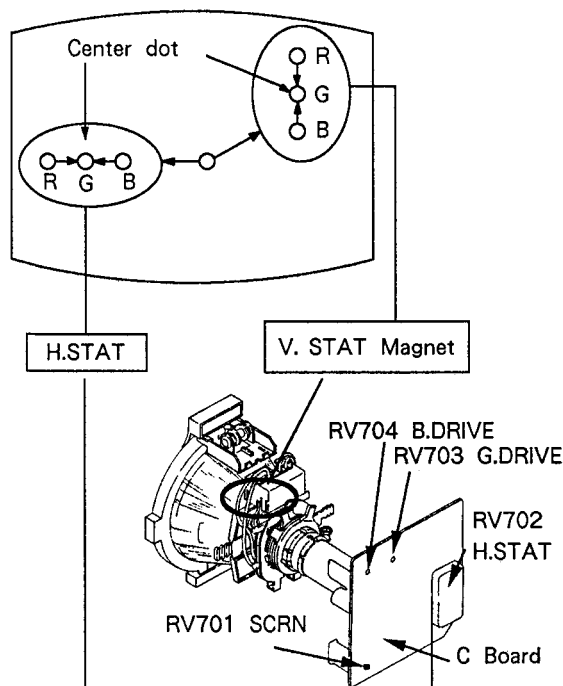


### 3-2. CONVERGENCE

#### Preparations :

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide a dot pattern.

#### (1) Horizontal and vertical static convergence

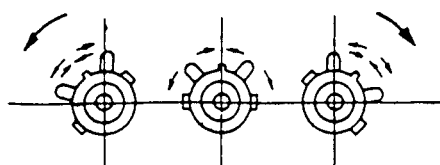
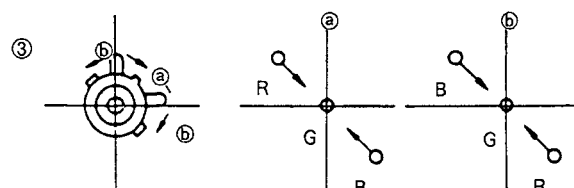
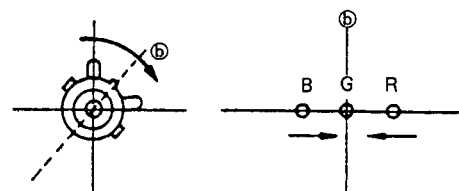
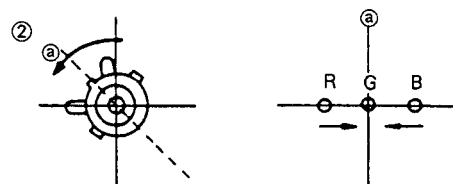
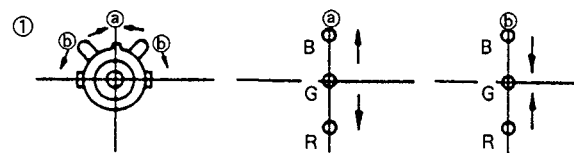


1. (Moving horizontally), adjust the H. STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V. STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H. STAT variable resistor can not bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H. STAT variable resistor and the V. STAT magnet in the manner given below.

(In this case, the H. STAT variable resistor and the V. STAT magnet influence each other's settings.)

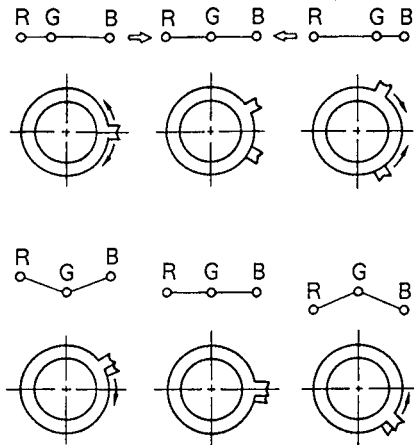
- Tilt the V. STAT magnet and adjust the static convergence by opening or closing the V. STAT magnet.

4. If the V. STAT magnet is moved in the direction of the ① and ② arrows, the red, green, and blue points move as shown below.



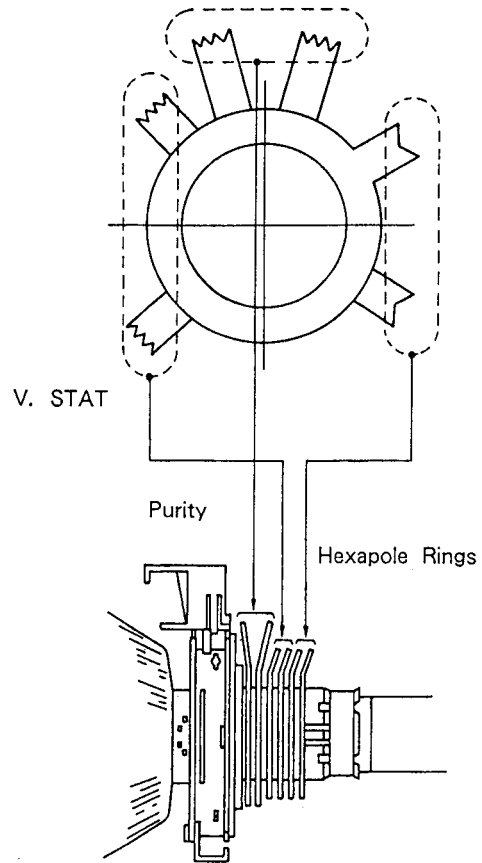


● Operation of Hexapole Ringed Magnet



The respective dot operations resulting from the operation of each magnet are not completely independent, so be sure to perform adjustment while tracking.

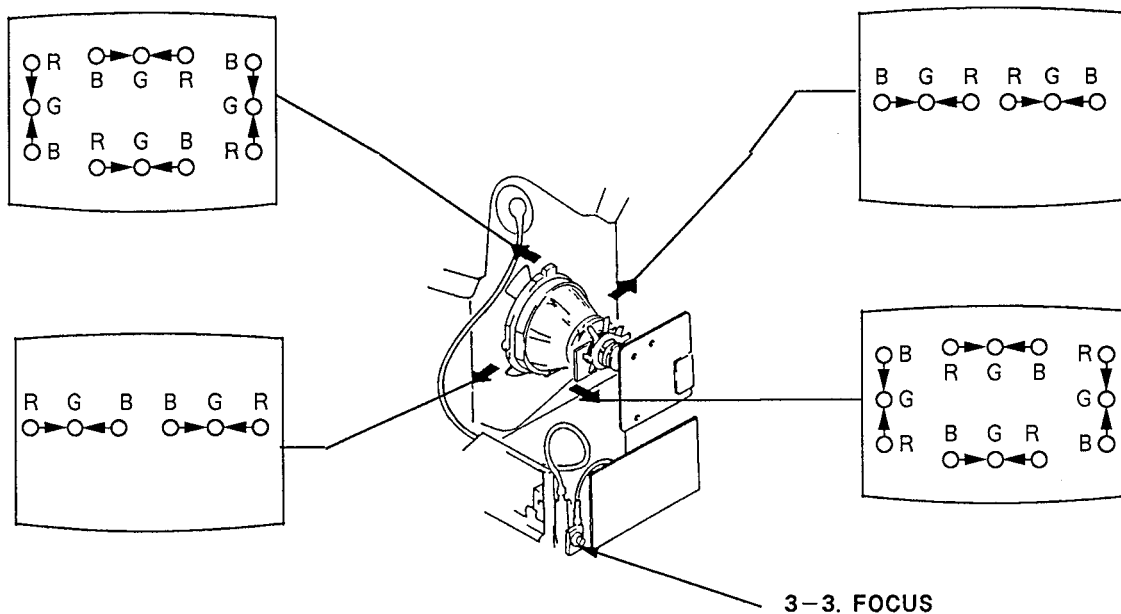
Use the H, STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).



## (2) Dynamic convergence adjustment

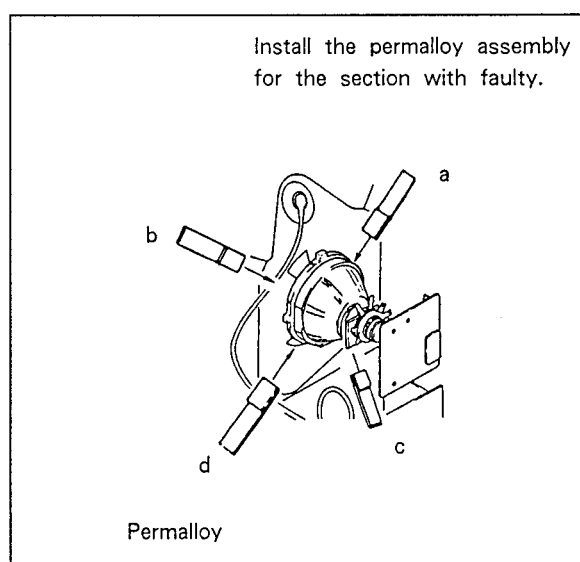
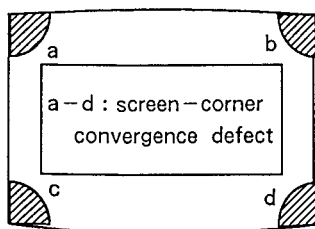
### Preparations

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
- 1. Slightly loosen the deflection yoke screws.
- 2. Remove the deflection yoke spacer.
- 3. Move the deflection yoke as shown in the figure below and optimize the convergence.
- 4. Tighten the deflection yoke screws.
- 5. Install the deflection yoke spacer.



Adjust the focus to optimize the screen.

## (3) Screen corner convergence



### **3-4. WHITE BALANCE**

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170 VDC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

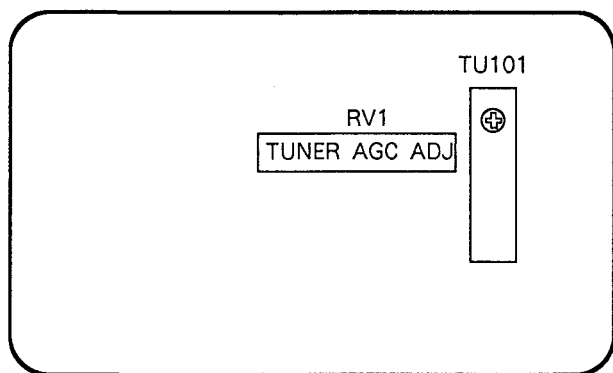
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use RV704 (B Drive) and RV703 (G Drive) to adjust the white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

## SECTION 4 CIRCUIT ADJUSTMENTS

### 4-1 A BOARD ADJUSTMENTS

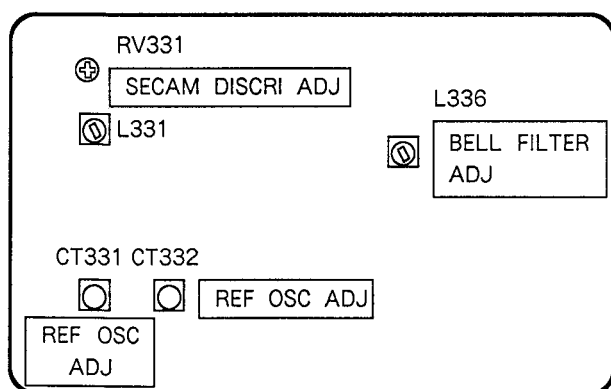


(COMPONENT SIDE)

#### TUNER AGC ADJUSTMENT (VIF101 RV1)

1. Align with an appropriate signal between stations.
2. Adjust RV1 so that snow noise and cross modulation just disappear from the picture.

### 4-2. B BOARD ADJUSTMENTS



(COMPONENT SIDE)

#### REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8 MHz)

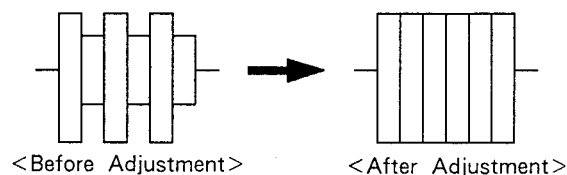
1. Input a PAL color bar signal.
2. Ground Pin ⑩ of IC331.
3. Adjust CT332 to obtain synchronization.

#### REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16 MHz)

1. Input an NTSC color bar signal.
2. Ground Pin ⑩ of IC331.
3. Adjust CT331 to obtain synchronization.
4. Remove the jumper grounding Pin ⑩ of IC331.

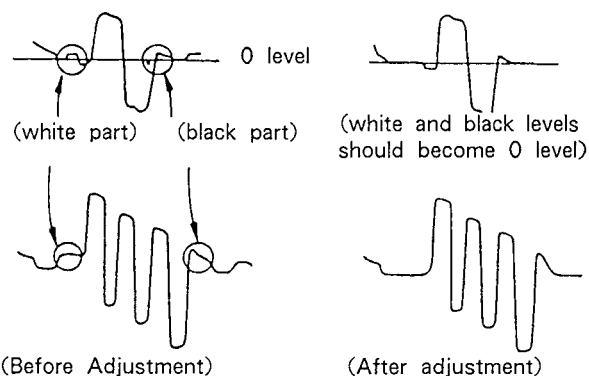
#### BELL FILTER ADJUSTMENT (L336)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.

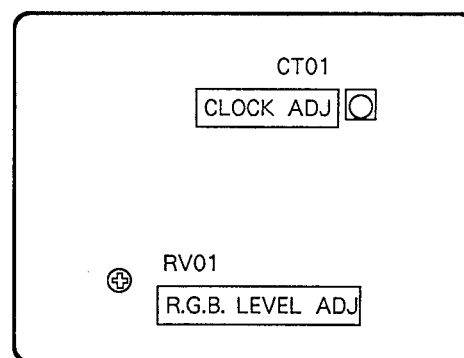


#### DISCRIMINATION ADJUSTMENT (RV331 and L331)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to Pin ① of IC331.
3. Adjust RV331 so that the white and black sections of the wave form at Pin ① come to the 0 level.
4. Connect the oscilloscope to Pin ③ of IC331.
5. Adjust L331 so that the white and black sections of the wave form at Pin ③ come to the 0 level.



### 4-3. V BOARD ADJUSTMENTS



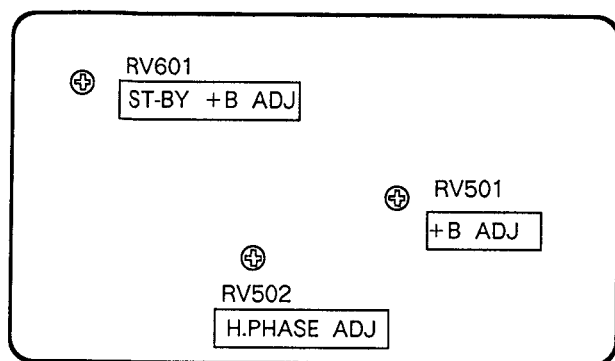
(COMPONENT SIDE)

1. Remove the V-1 connector.
2. Put the system into Text mode.
3. Adjust CT01 so that the picture does not move.

#### RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that RGB output is 0.75V

#### 4-4. D BOARD ADJUSTMENTS



##### +B ADJUSTMENT (RV501)

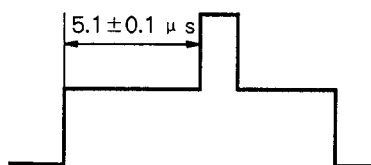
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain  $135 \pm 3.0V$ .

##### ST-BY +B ADJUSTMENT (RV601)

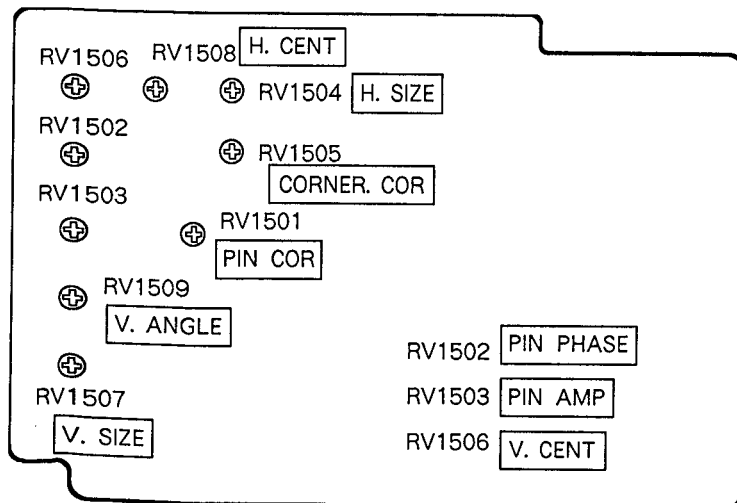
1. Put the system into  $\odot$  standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain  $135 \pm 3V$ .
4. Take the system out of  $\odot$  standby mode (remote commander).

##### H.PHASE ADJUSTMENT (RV502)

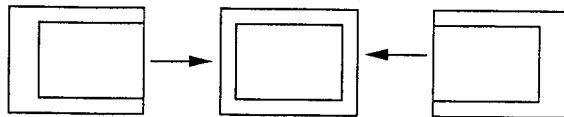
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H. CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC501.
5. Rotate RV502 to adjust to  $5.1 \pm 0.1 \mu s$ .



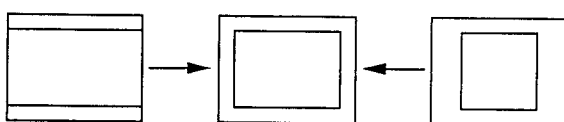
#### 4-5. J1 BOARD ADJUSTMENTS



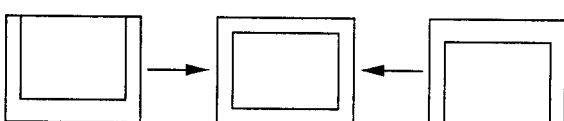
##### RV1508 H. CENT (HORIZONTAL CENTER)



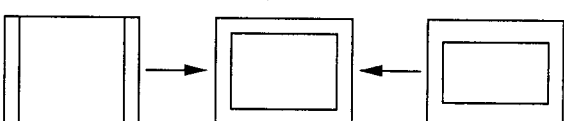
##### RV1504 H. SIZE (HORIZONTAL SIZE)



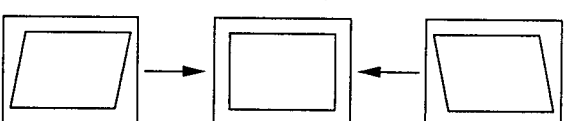
##### RV1506 V. CENT (VERTICAL CENTER)



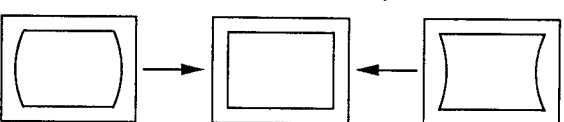
##### RV1507 V. SIZE (VERTICAL SIZE)



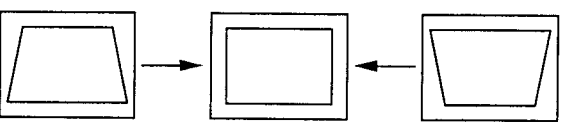
##### RV1509 V. ANGLE (VERTICAL ANGLE)



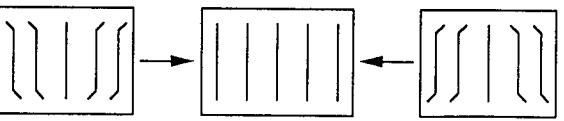
##### RV1503 PIN AMP (PINCUSHION AMPLIFIER)



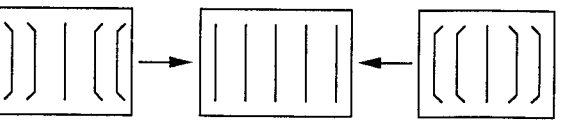
##### RV1502 PIN PHASE (PINCUSHION PHASE)



##### RV1501 PIN. COR (PINCUSHION CORRECT)



##### RV1505 CORNER. COR (CORNER CORRECT)



SECTION 5

DIAGRAMS

5-1. BLOCK DIAGRAM

4-6. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

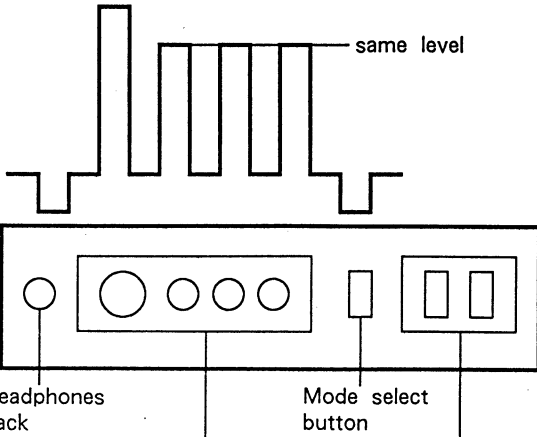
1. Set the system to receive a test color pattern.
2. Press →← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and - simultaneously, turn on the power. (SUB mode is obtained)
5. Minimize the ● contrast setting.
6. Adjust the ✕ brightness control so that the gray scale O IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander. (SUB mode is released)

If there is no test color pattern

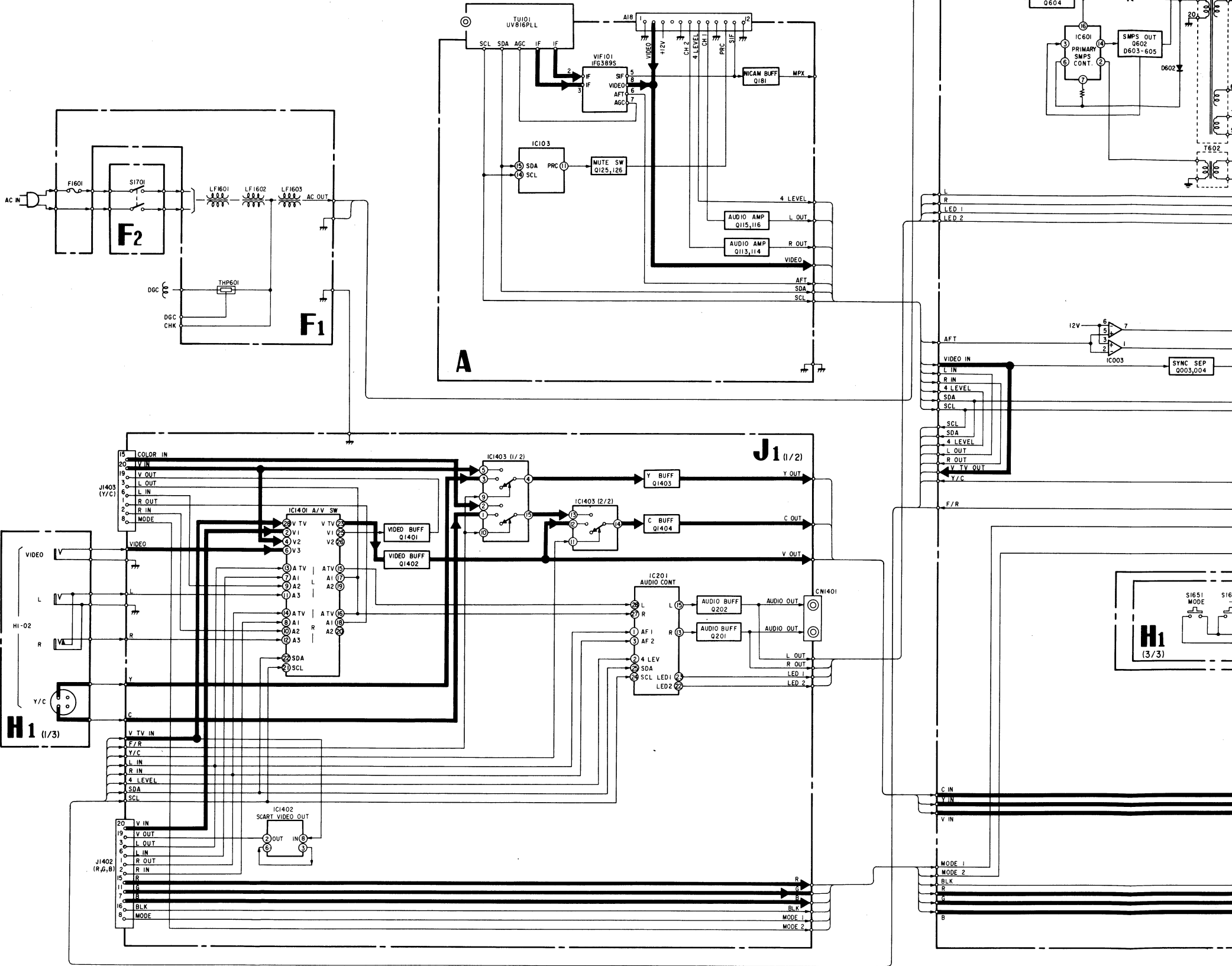
1. Set the system to receive a color pattern.
2. Press on the remote commander to put system into normal made.
- Set the ● color to its normal state.
- 3.-5.are the same as above.
6. Since 20 IRE is nearly blue, adjust the ✕ brightness control so that the blue barely glows.
7. is the same as adove.
8. Press →← on the remote commander to put the system into normal mode.

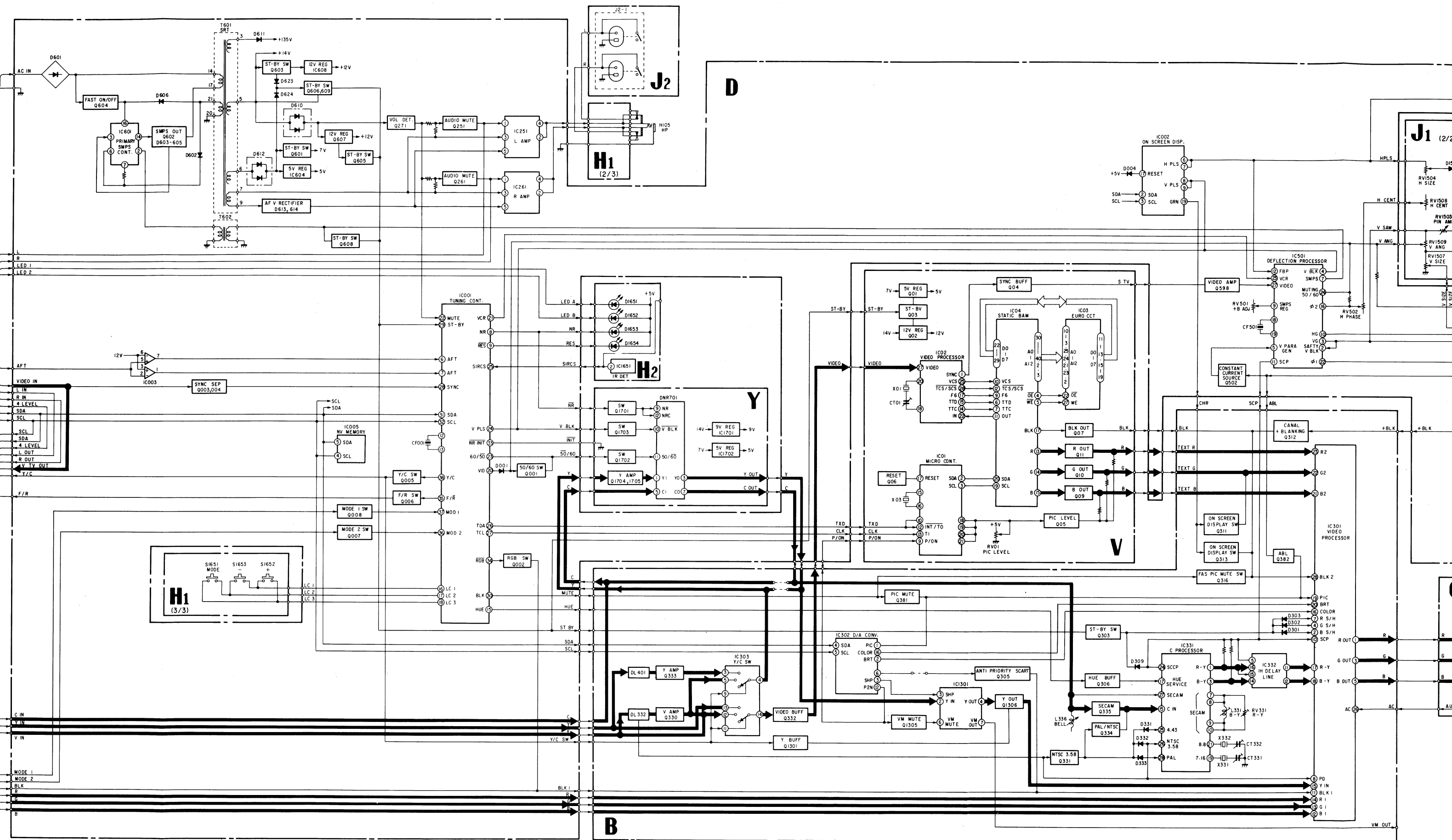
SUB COLOR ADJUSTMENT

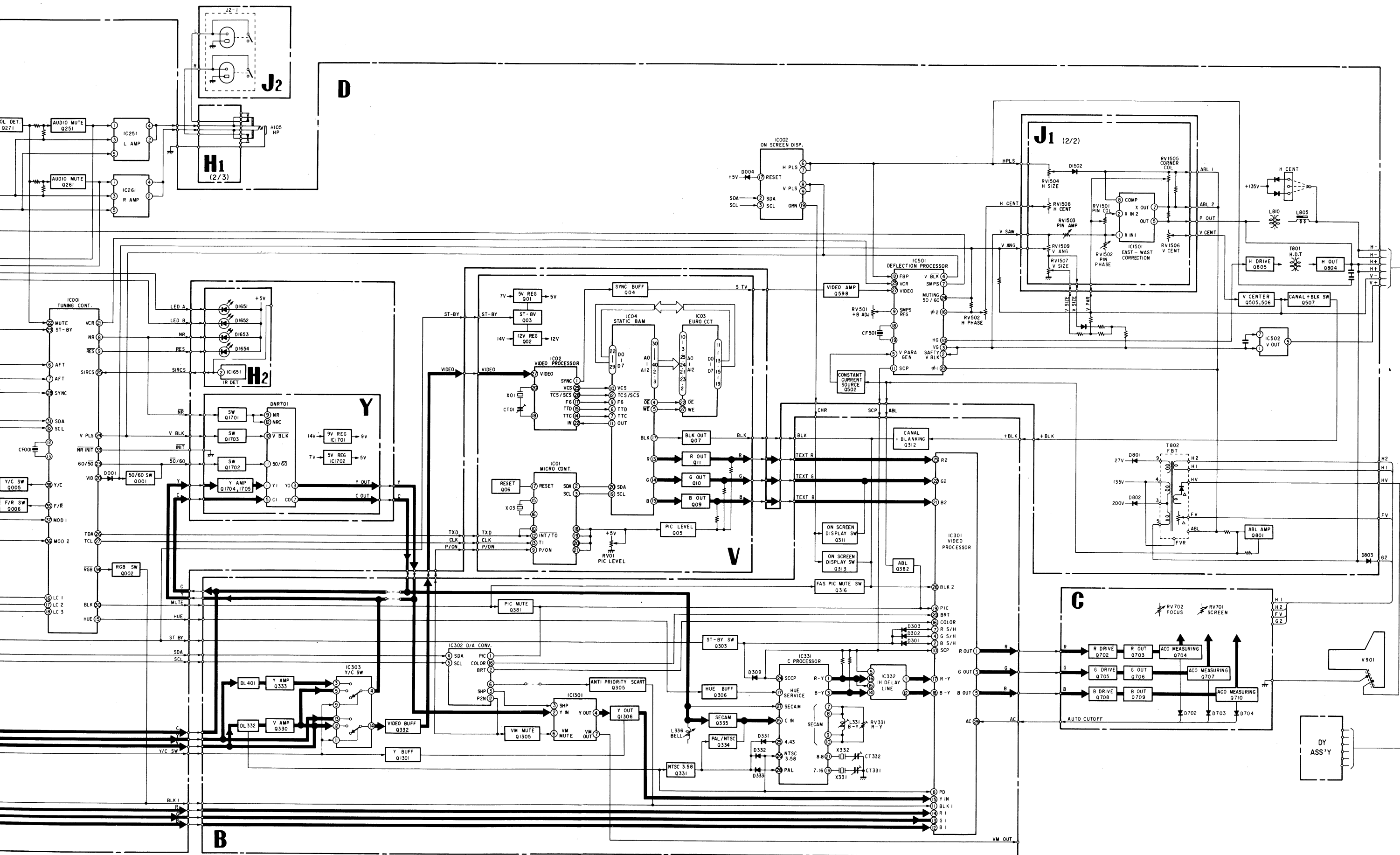
1. Set the system to receive color bars.
2. Press →← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjusting buttons + and - simultaneously, turn on the power. (SUB mode is obtained)
5. Adjust the color control so that the B out wave form (Pin ② of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)



3 input jack      Adjustment buttons

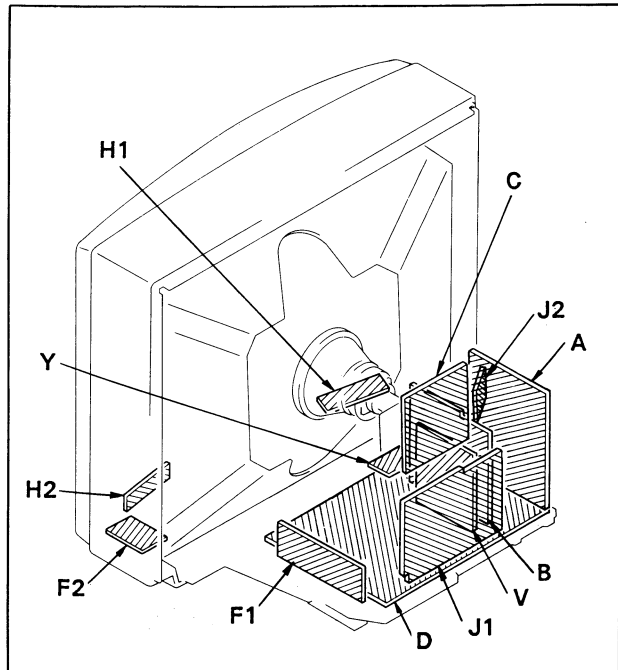









## 5-2. CIRCUIT BOARDS LOCATION









Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

### Note :

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  
pF :  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm  
Rating electrical power: 1/4W

- Chip resistor is in 1/10W.
- All resistors are in ohms.  $\text{k}\Omega = 1000\Omega$ ,  $\text{M}\Omega = 1000\text{k}\Omega$
-  : nonflammable resistor.
-  : fusible resistor.
- $\triangle$  : internal component.
-  : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in V.
- Readings are taken with a 10M $\Omega$  digital multimeter.
- Readings are taken with a color-bar signal input.
-  : adjustment for repair.
- Voltage variations may be noted due to normal production tolerances.
-  : B+ line.
-  : signal path.

## 5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS —Conductor Side—

**F1**

[LINE FILTER, DGC]

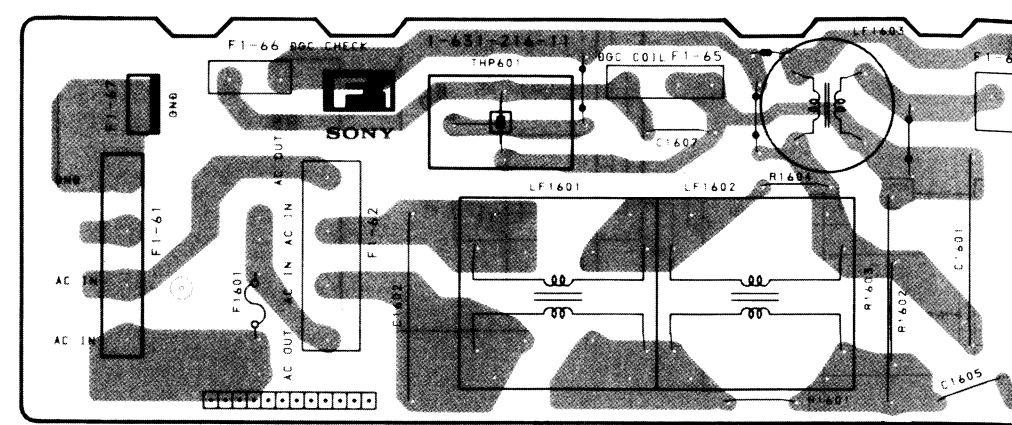
**F2**

[POWER SWITCH]

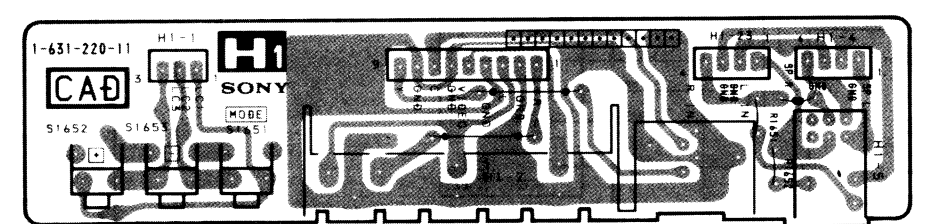
**H1**

[CONTROL SW HEADPHONE]

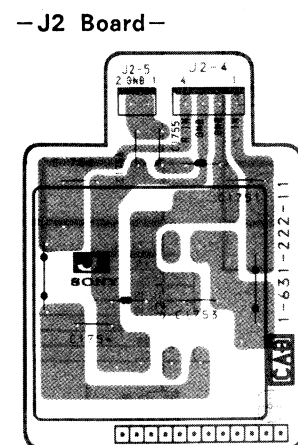
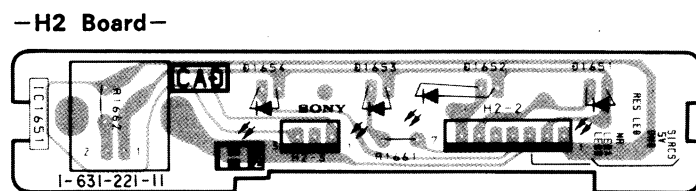
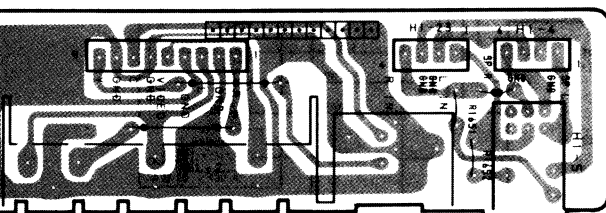
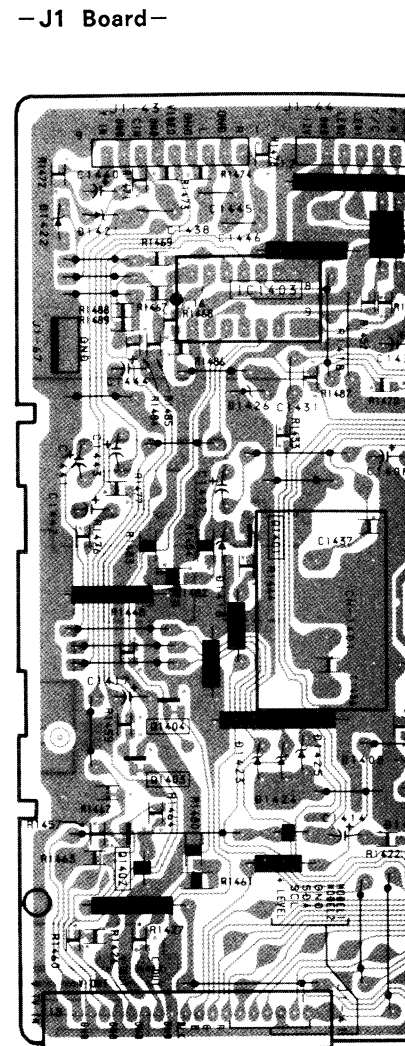
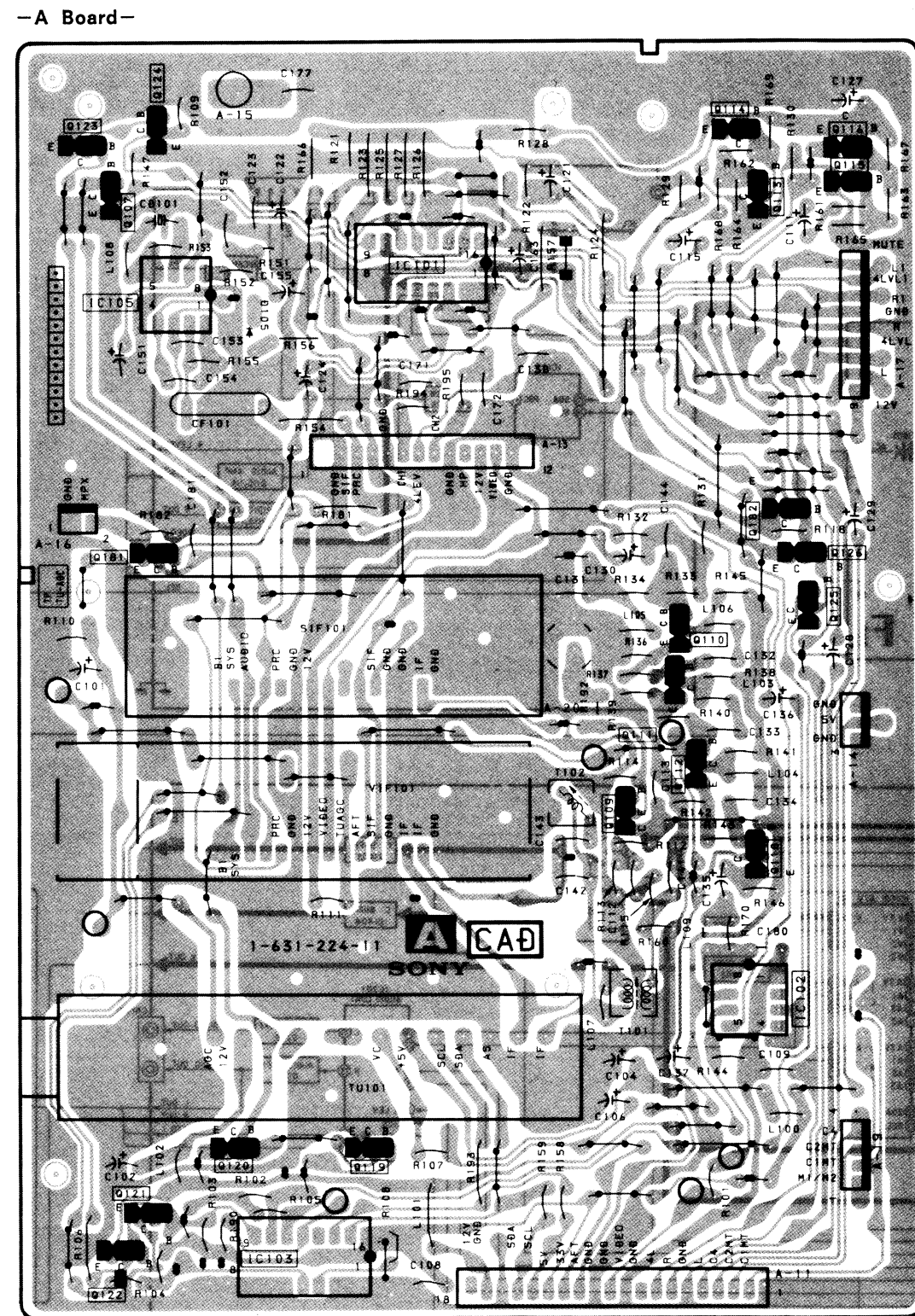
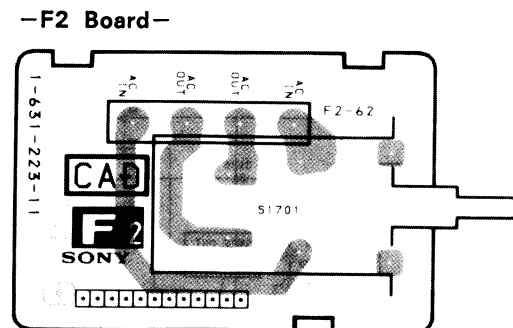
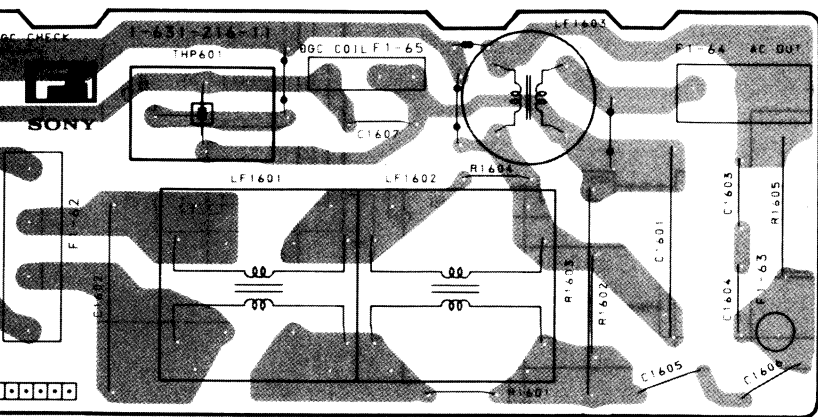
—F1 Board—



—H1 Board—



- C]
- F2 [POWER SWITCH]
- H1 [CONTROL SW, AV INPUT, HEADPHONE]
- H2 [SIRCS RECEIVER, INDICATOR]
- A [TUNER, VIF SIF]
- J1 [AUDIO CONTROL, AV INPUT, SCART VIDEO OUT, EAST-WEST CORRECTION]
- J2 [SPEAKER TERMINAL]
- Y [NOISE REDUCTION]





SIRCS RECEIVER,  
INDICATOR

**A**

[ TUNER,  
VIF SIF ]

# J1

AUDIO CONTROL, AV INPUT,  
SCART VIDEO OUT,  
EAST-WEST CORRECTION

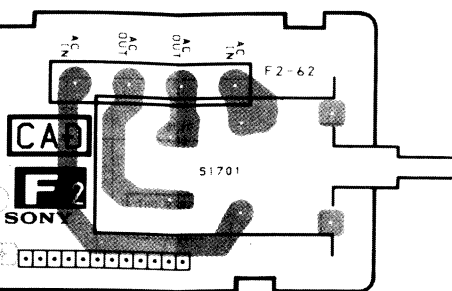
# J2

[SPEAKER TERMINAL]

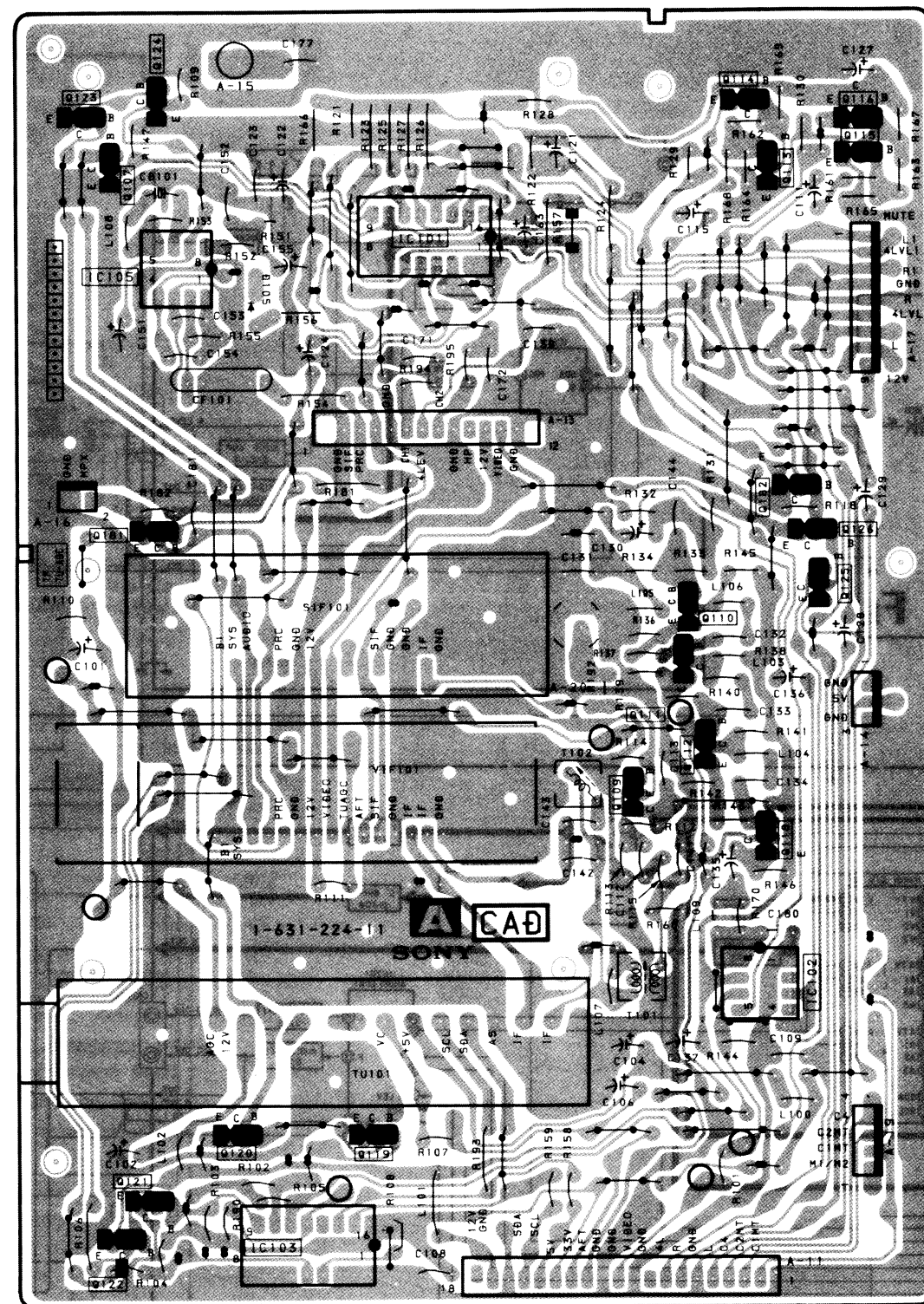
**Y**

[ NOISE  
REDUCTION ]

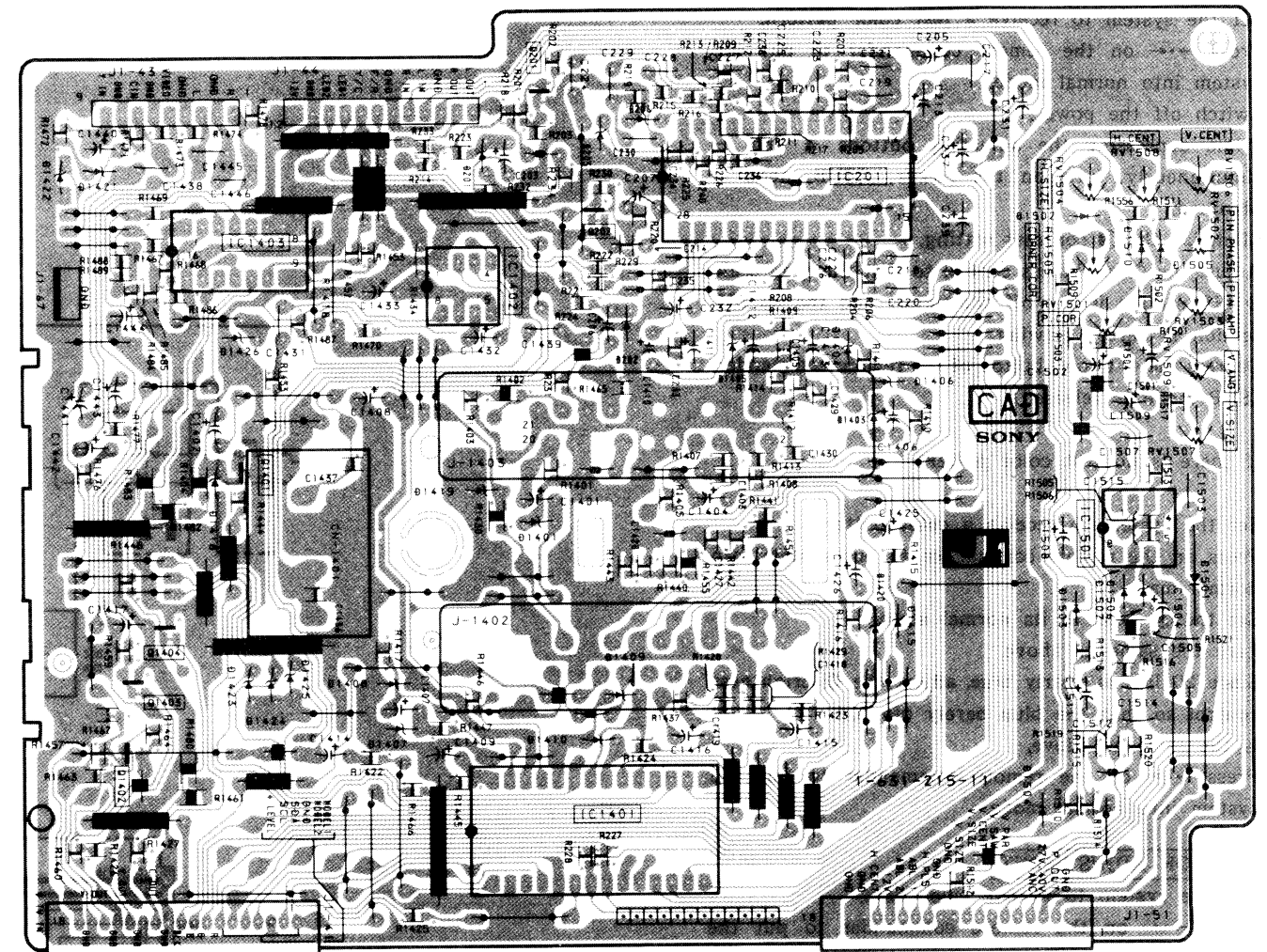
## 2 Board—



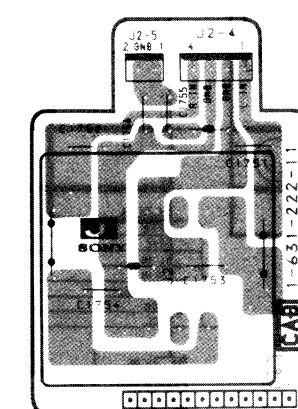
**- A Board -**



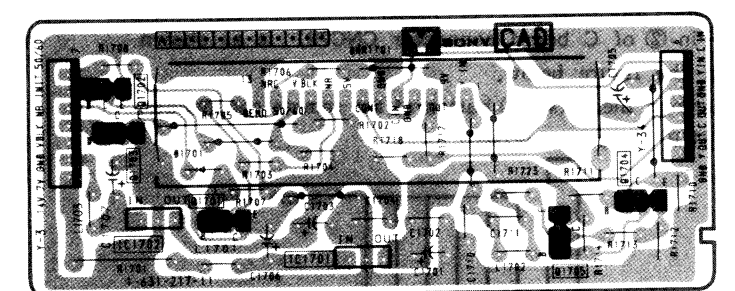
—J1 Board—



—J2 Board—



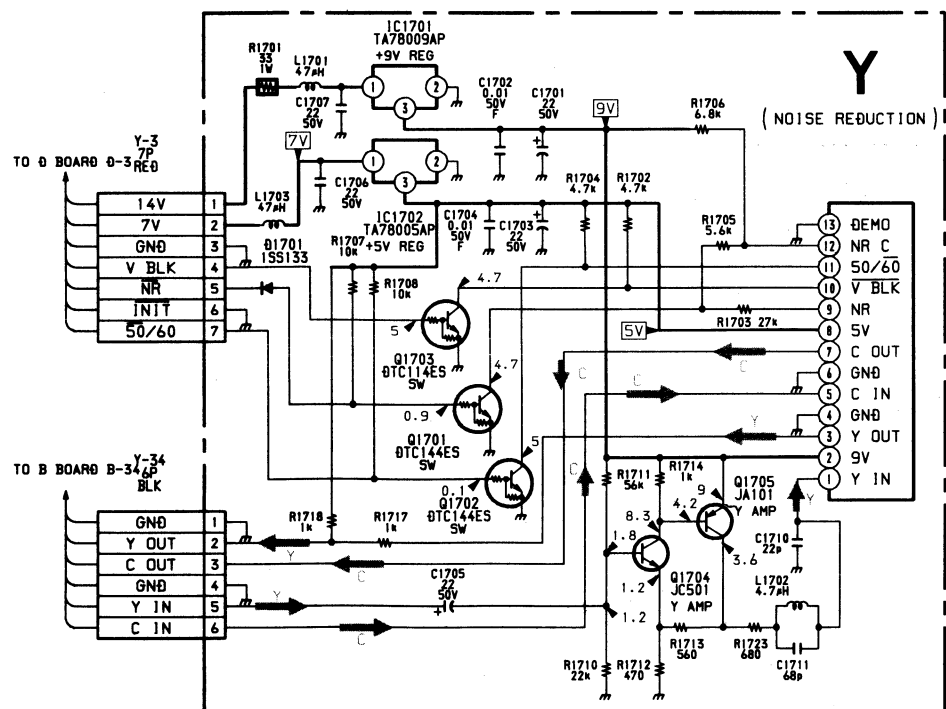
—Y Board—



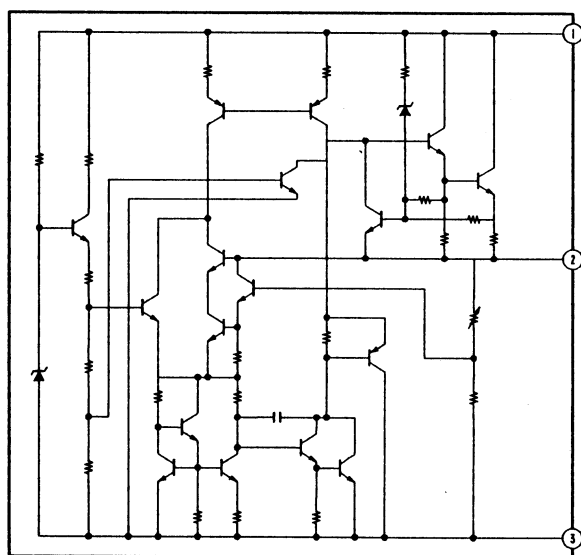




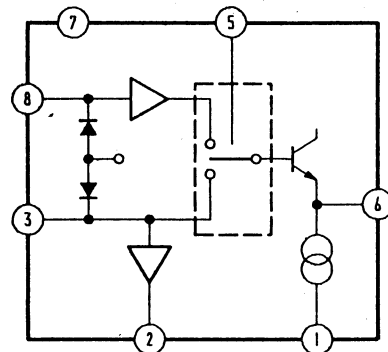




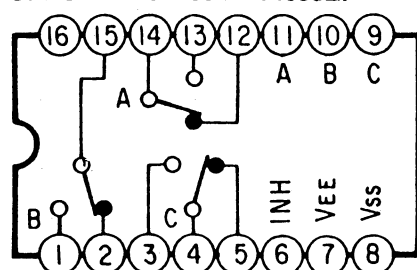
**Y BOARD IC701 TA78009AP**  
**Y BOARD IC702 TA78005AP**



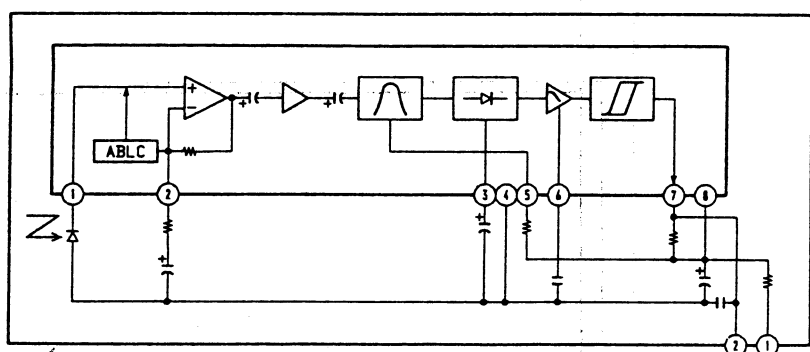
**J1 BOARD IC1402 TEA2014A**



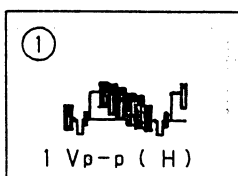
**J1 BOARD IC1403 HD14053BP**



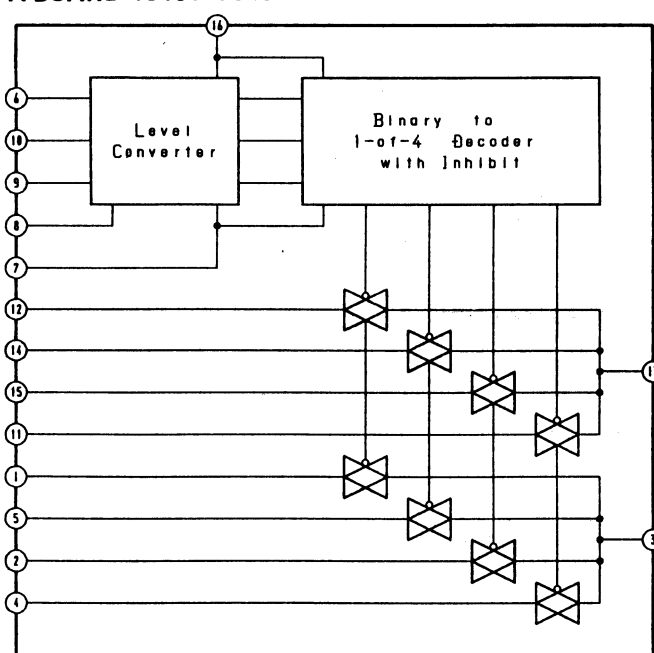
**H2 BOARD IC1651 BX1387**



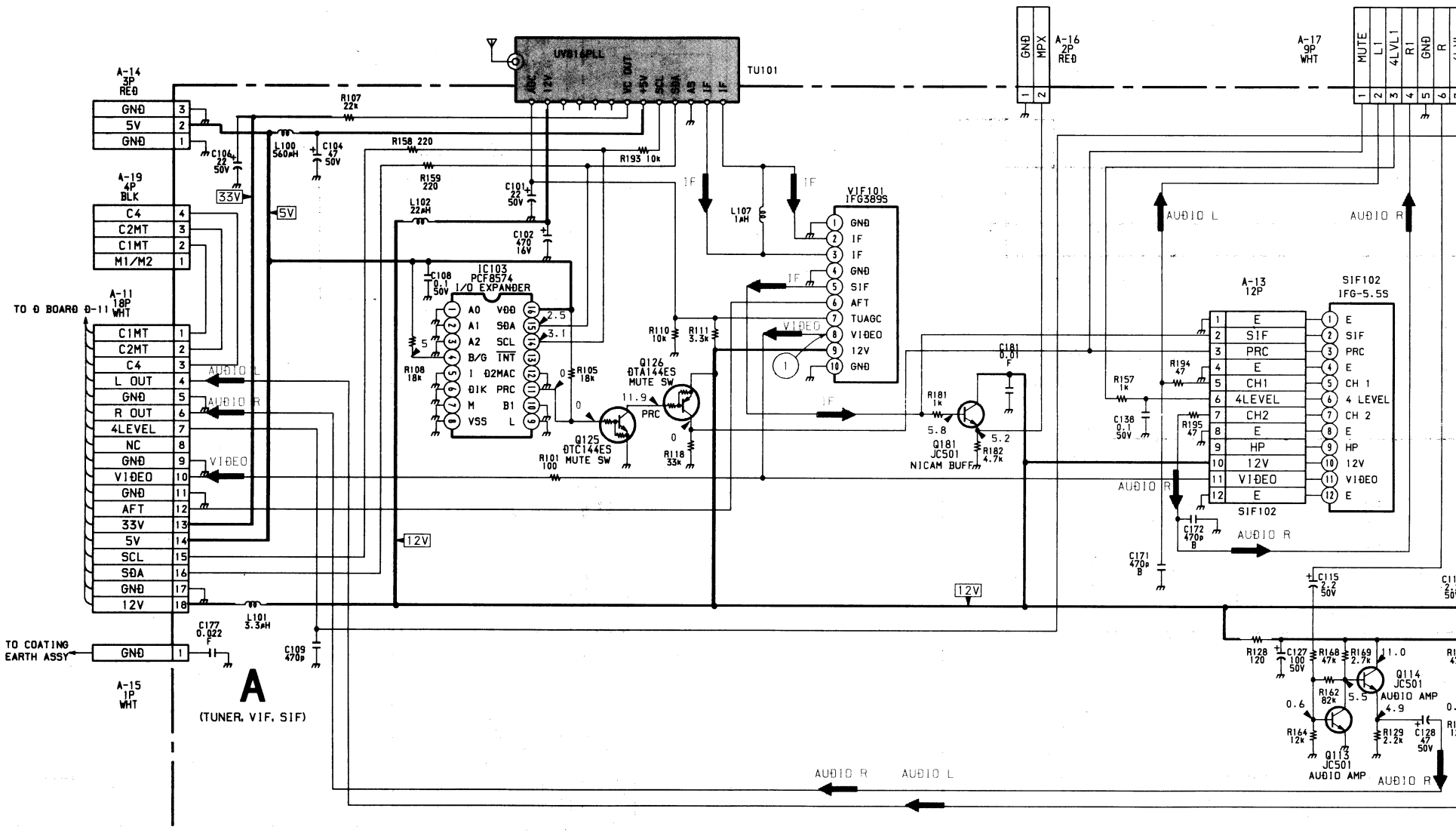
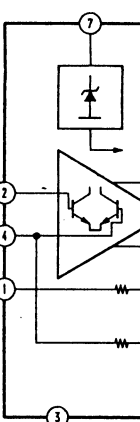
• WAVEFORMS A BOARD

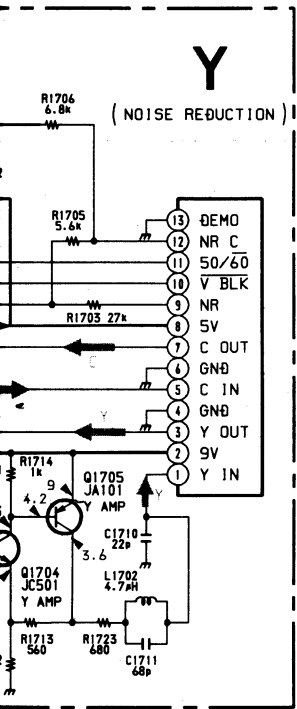


**A BOARD IC101 TC4052BPHB**

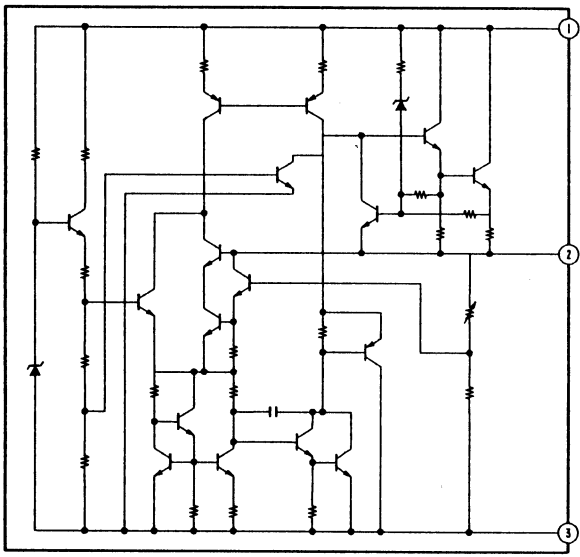


**A BOARD IC101 TC4052BPHB**

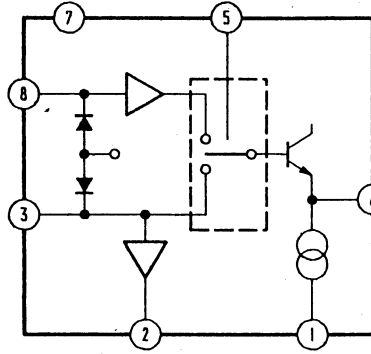




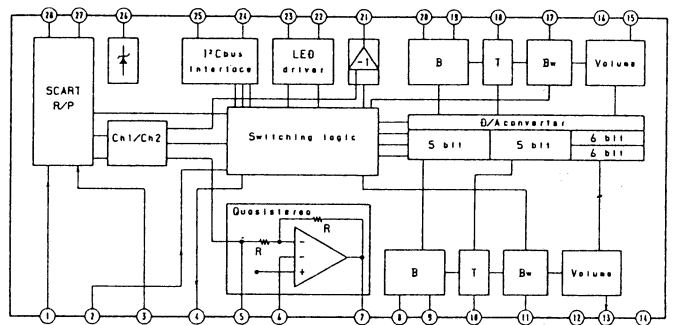
Y BOARD IC701 TA78009AP  
Y BOARD IC702 TA78005AP



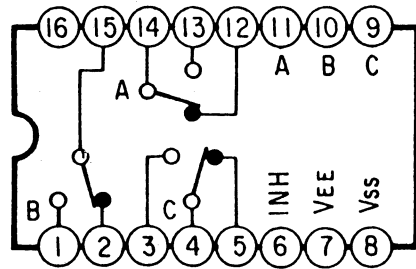
J1 BOARD IC1402 TEA2014A



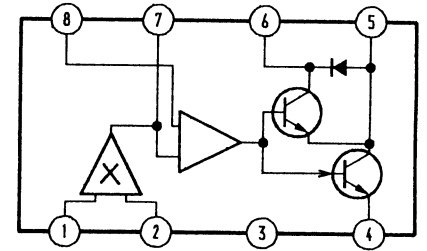
J1 BOARD IC201 TDA6200



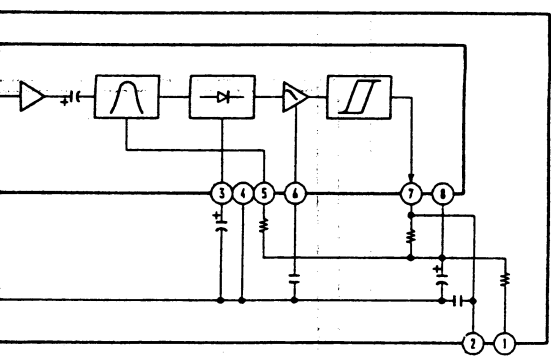
J1 BOARD IC1403 HD14053BP



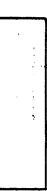
J1 BOARD IC1501 TEA2031



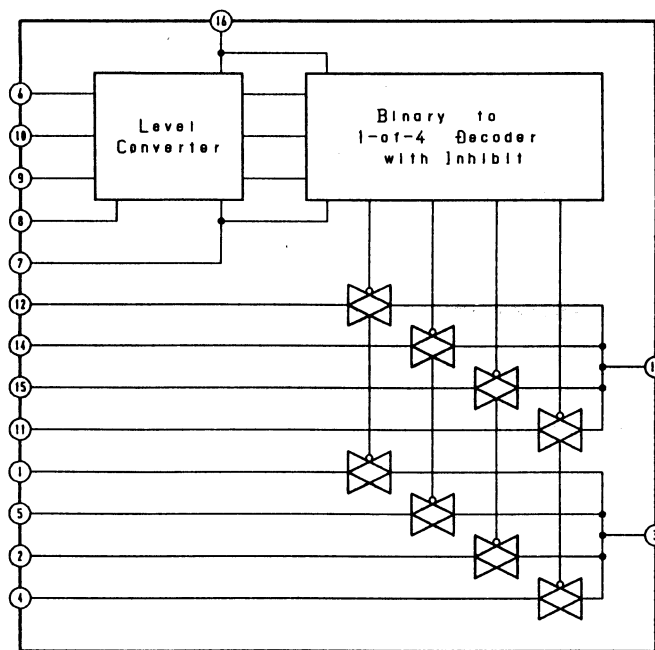
X1387



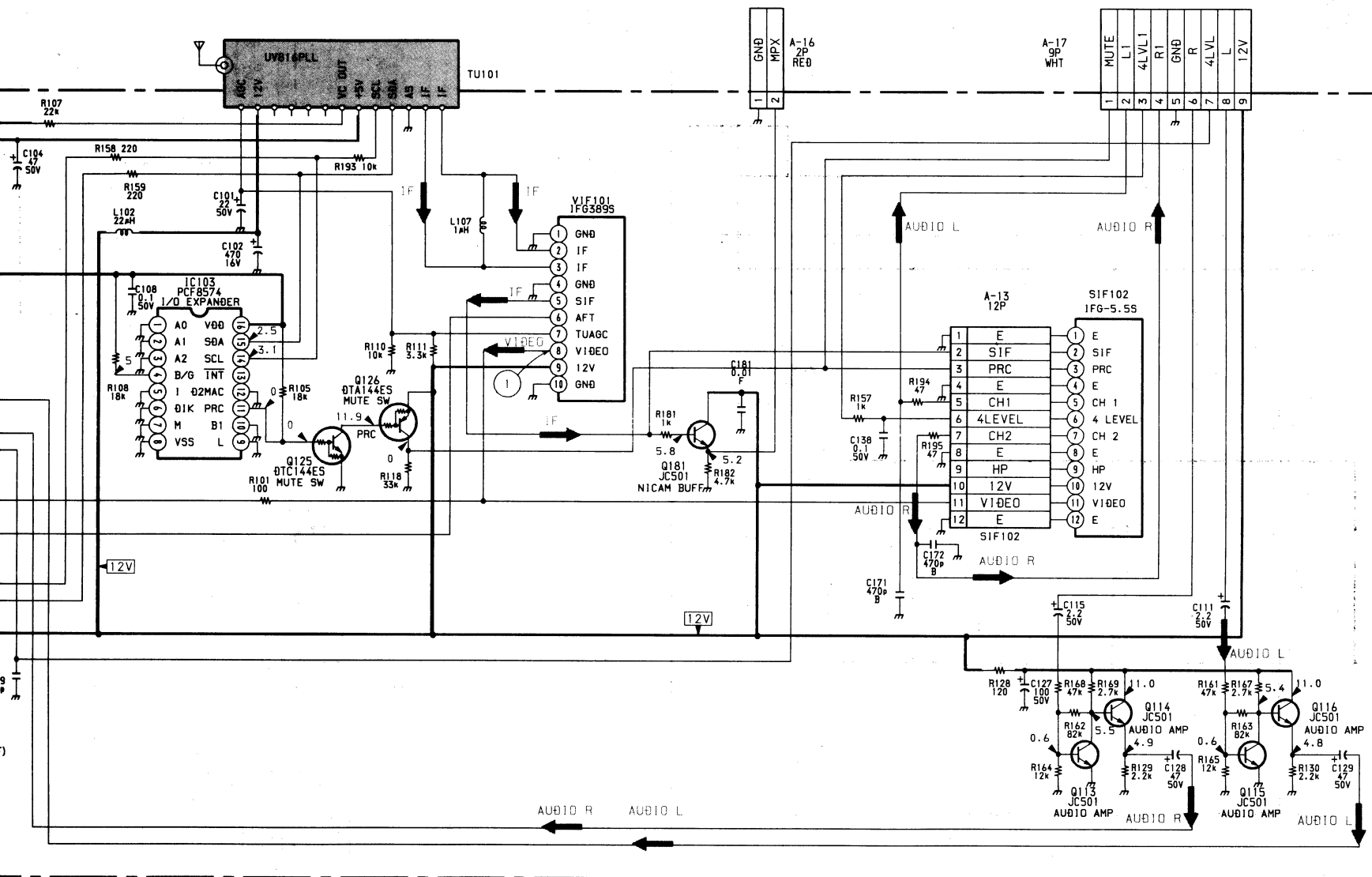
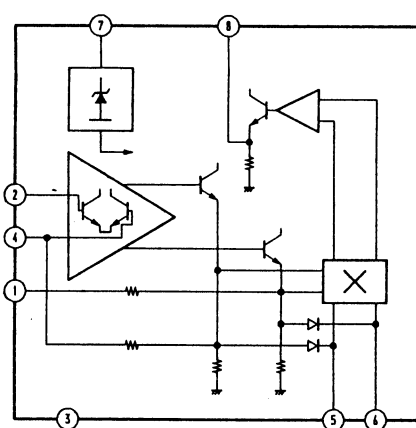
A BOARD



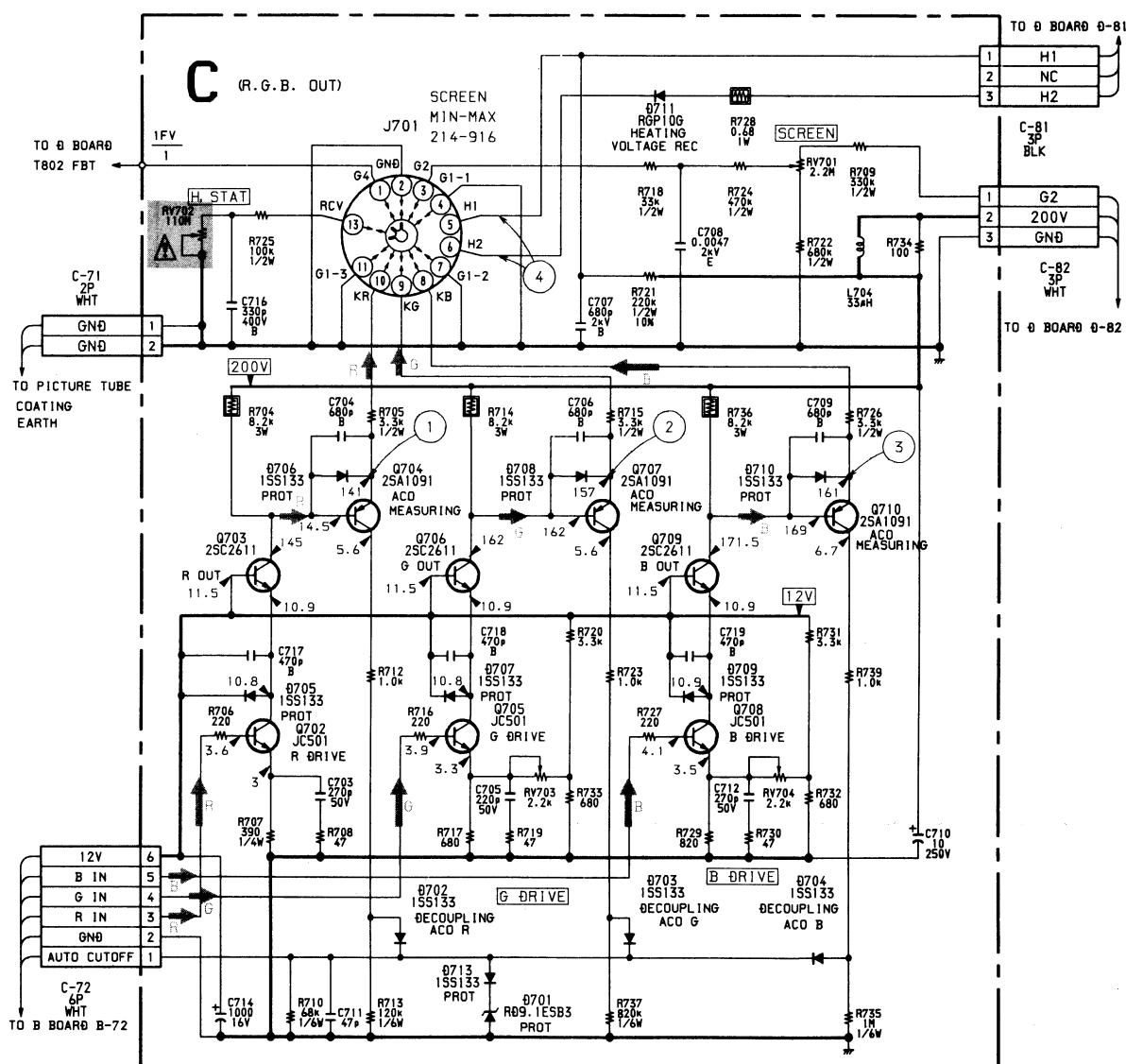
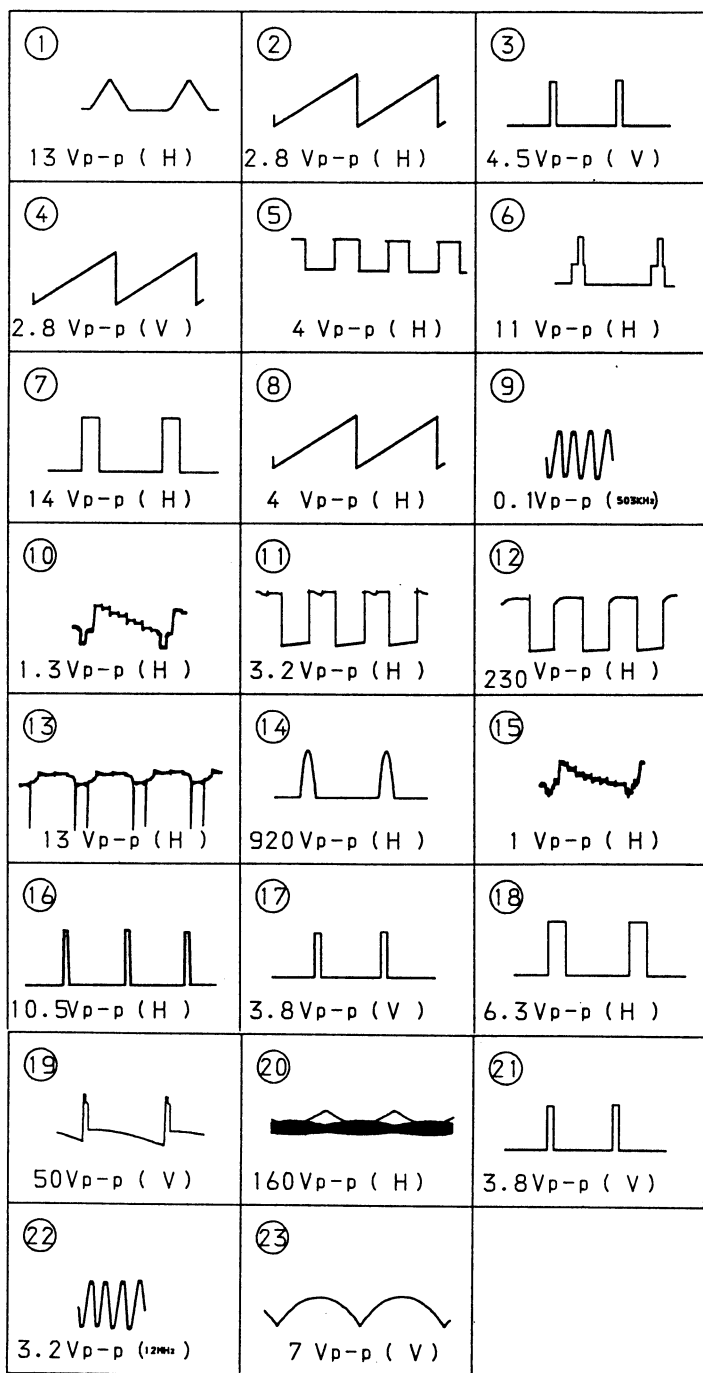
A BOARD IC101 TC4052BPHB



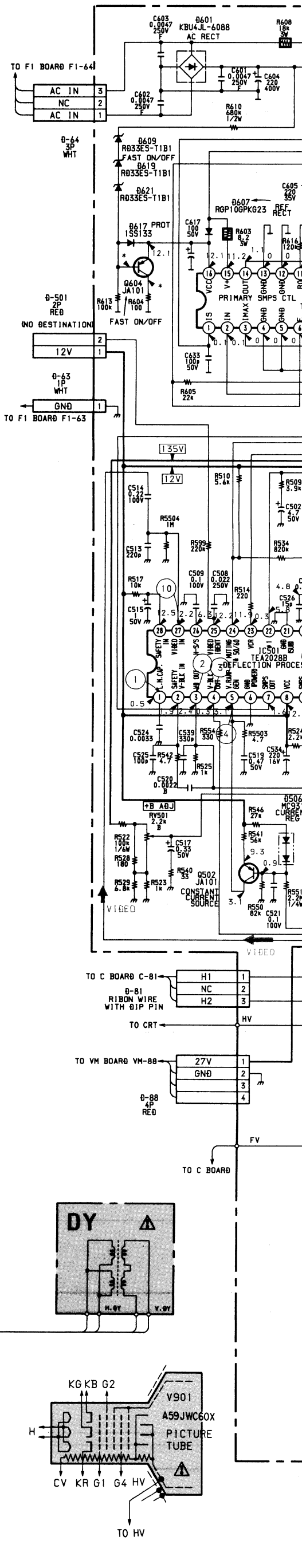
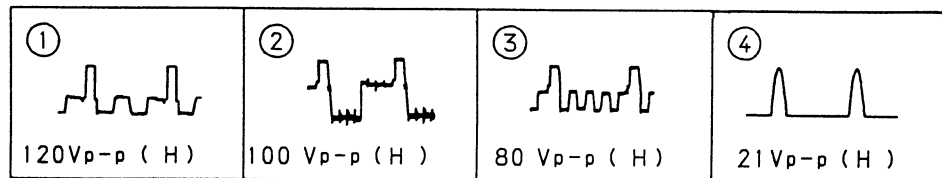
A BOARD IC105 TBA129



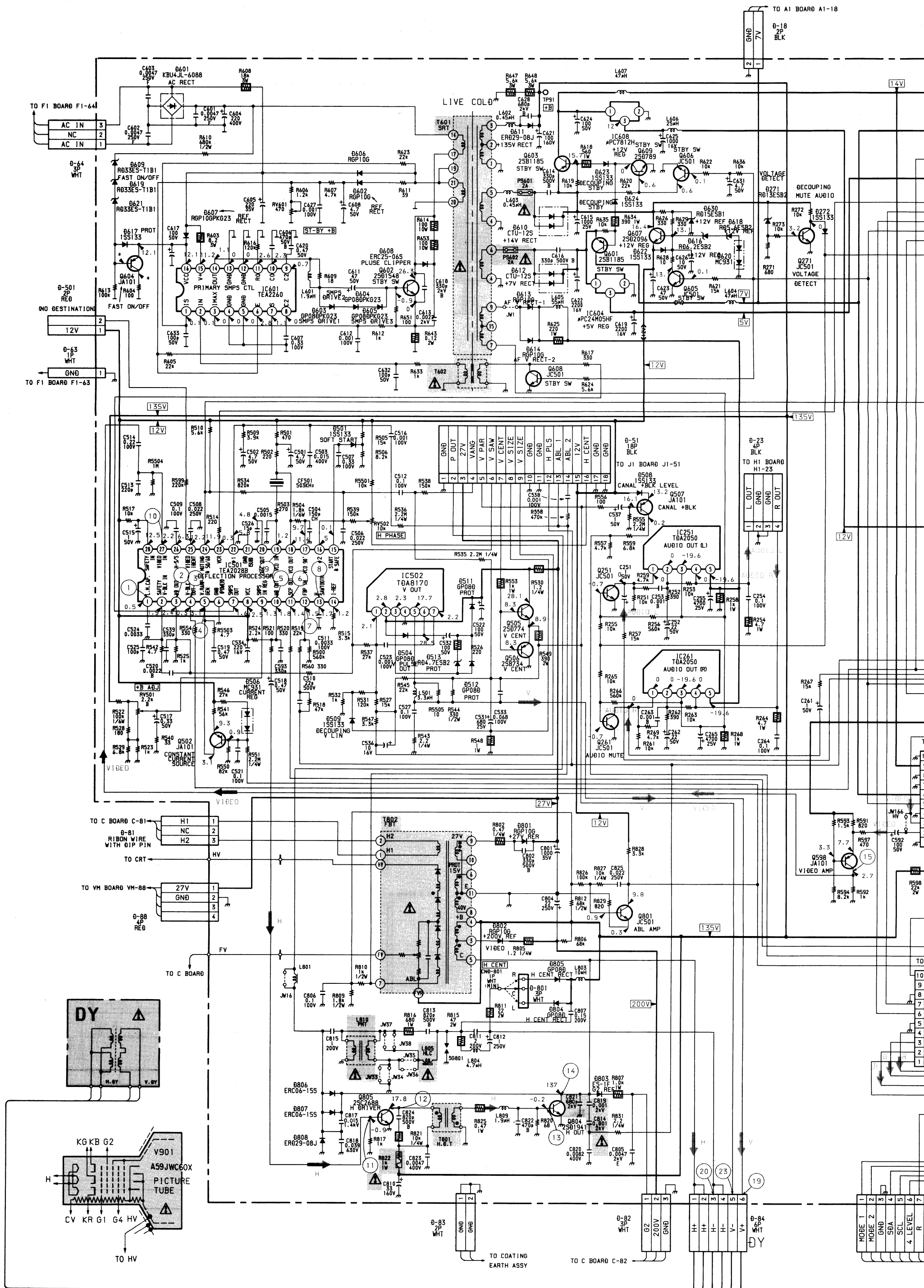
• WAVEFORMS D BOARD

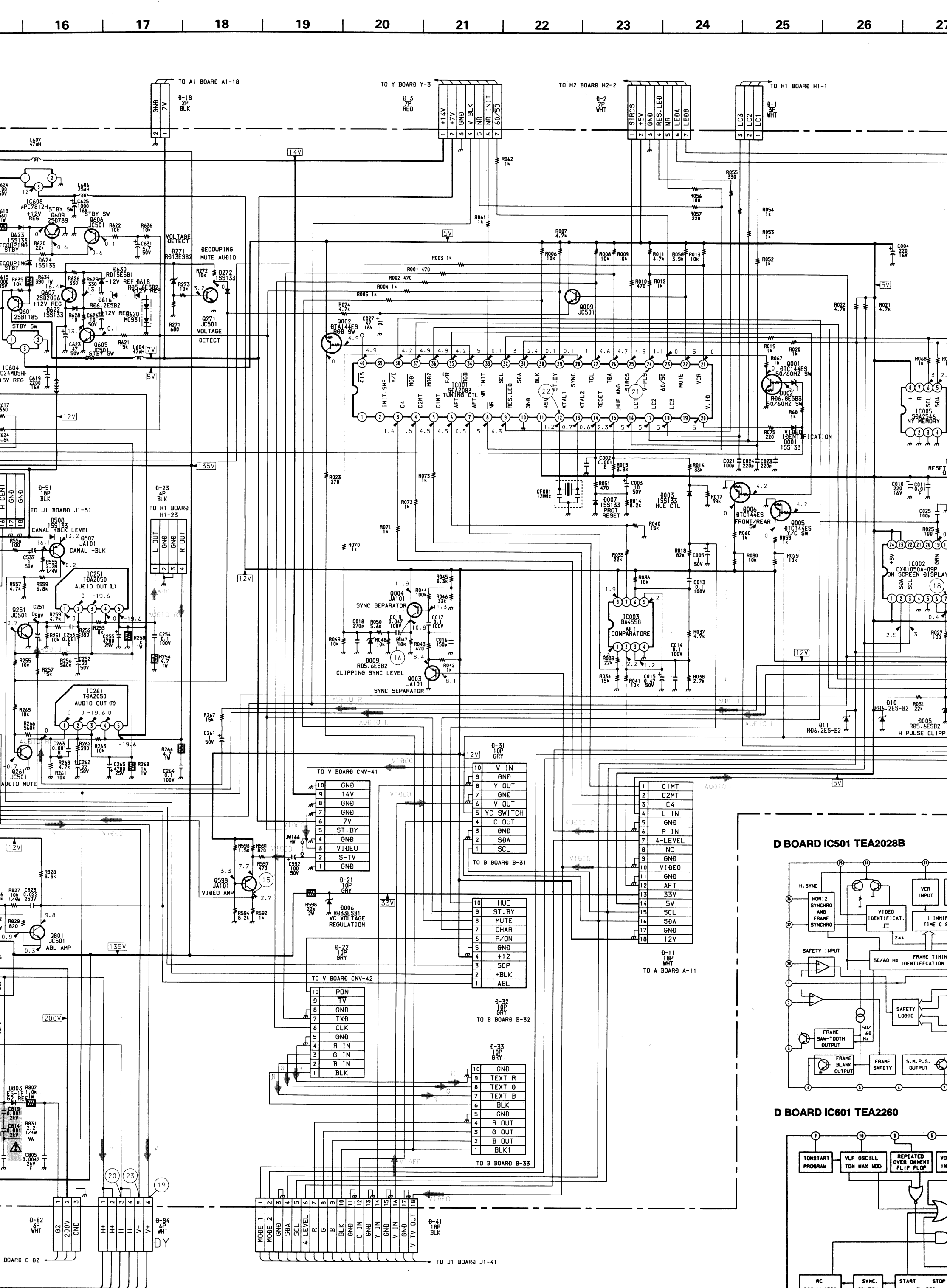


• WAVEFORMS C BOARD

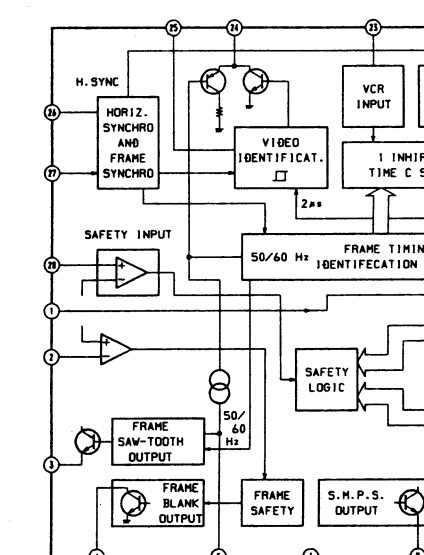




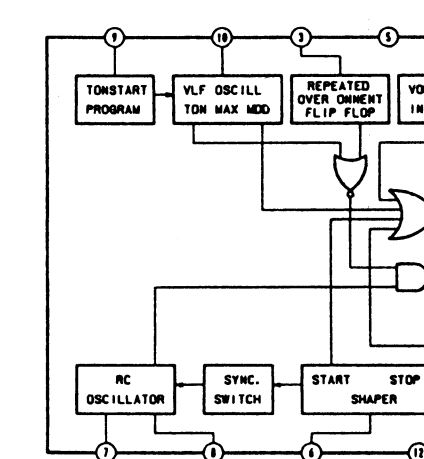


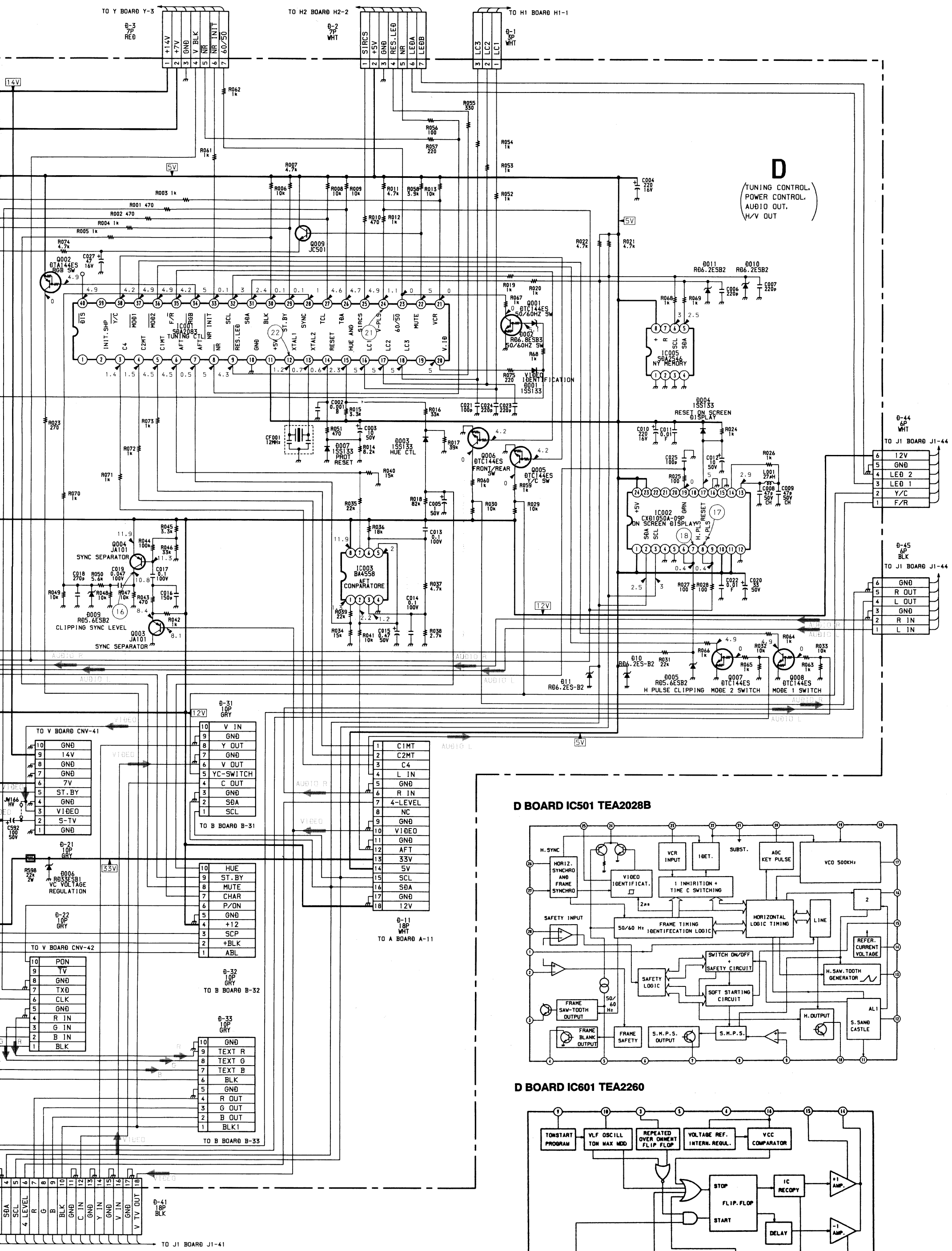


**D BOARD IC501 TEA2028B**



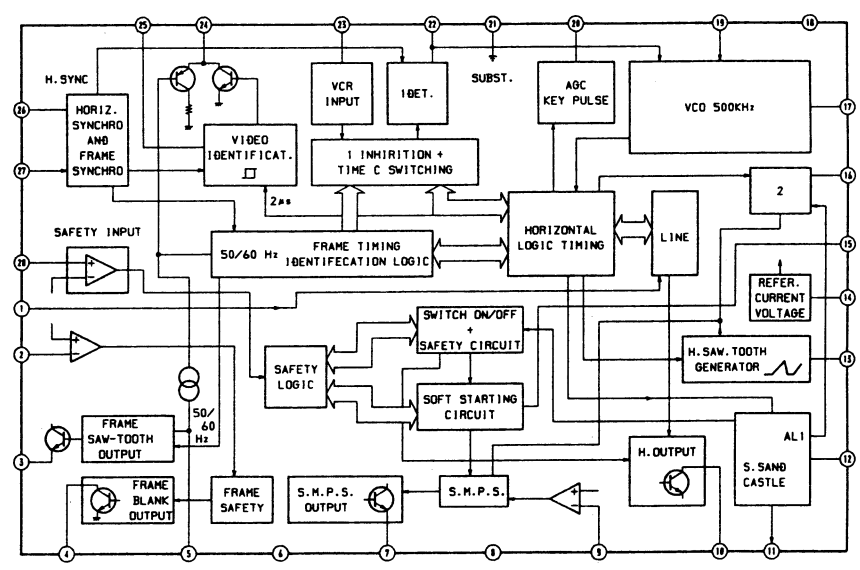
**D BOARD IC601 TEA2260**



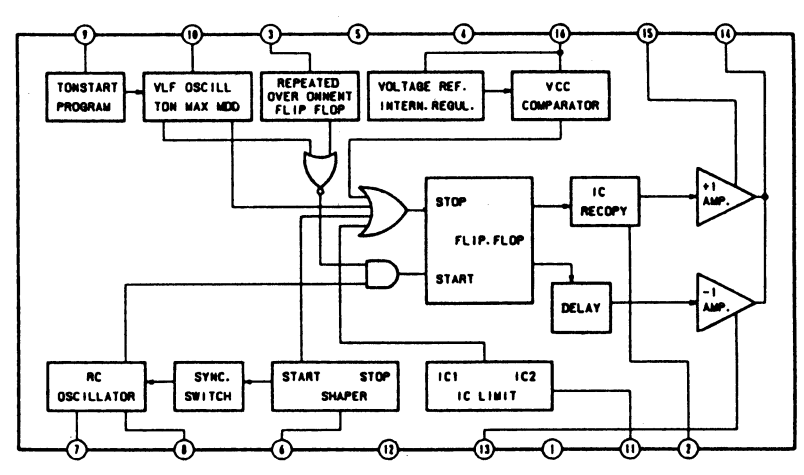


**D**  
(TUNING CONTROL,  
POWER CONTROL,  
AUDIO OUT,  
H/V OUT)

**D BOARD IC501 TEA2028B**



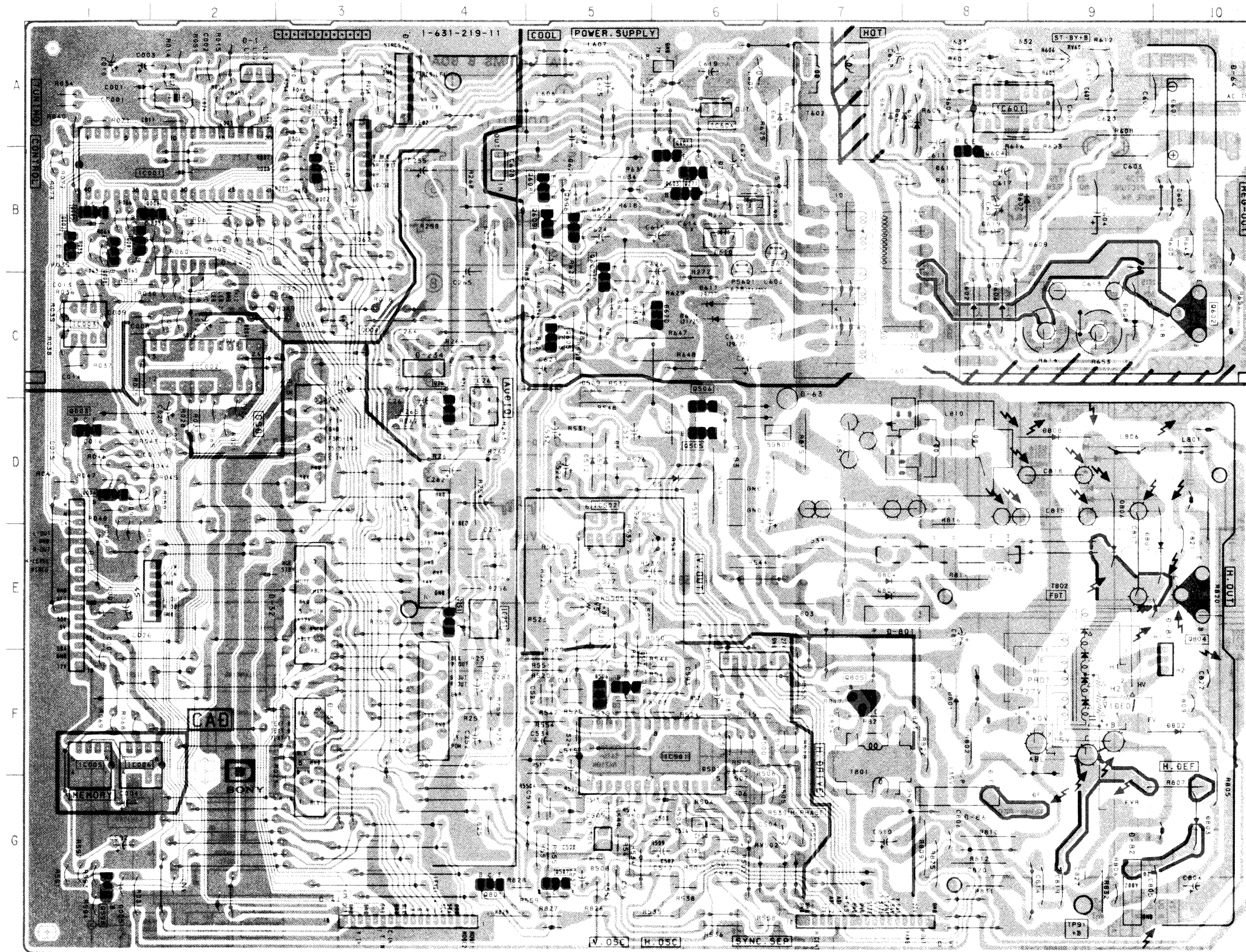
**D BOARD IC601 TEA2260**





**D** [TUNING CONTROL, POWER CONTROL]  
[AUDIO OUT, H/V OUT]

-D Board-

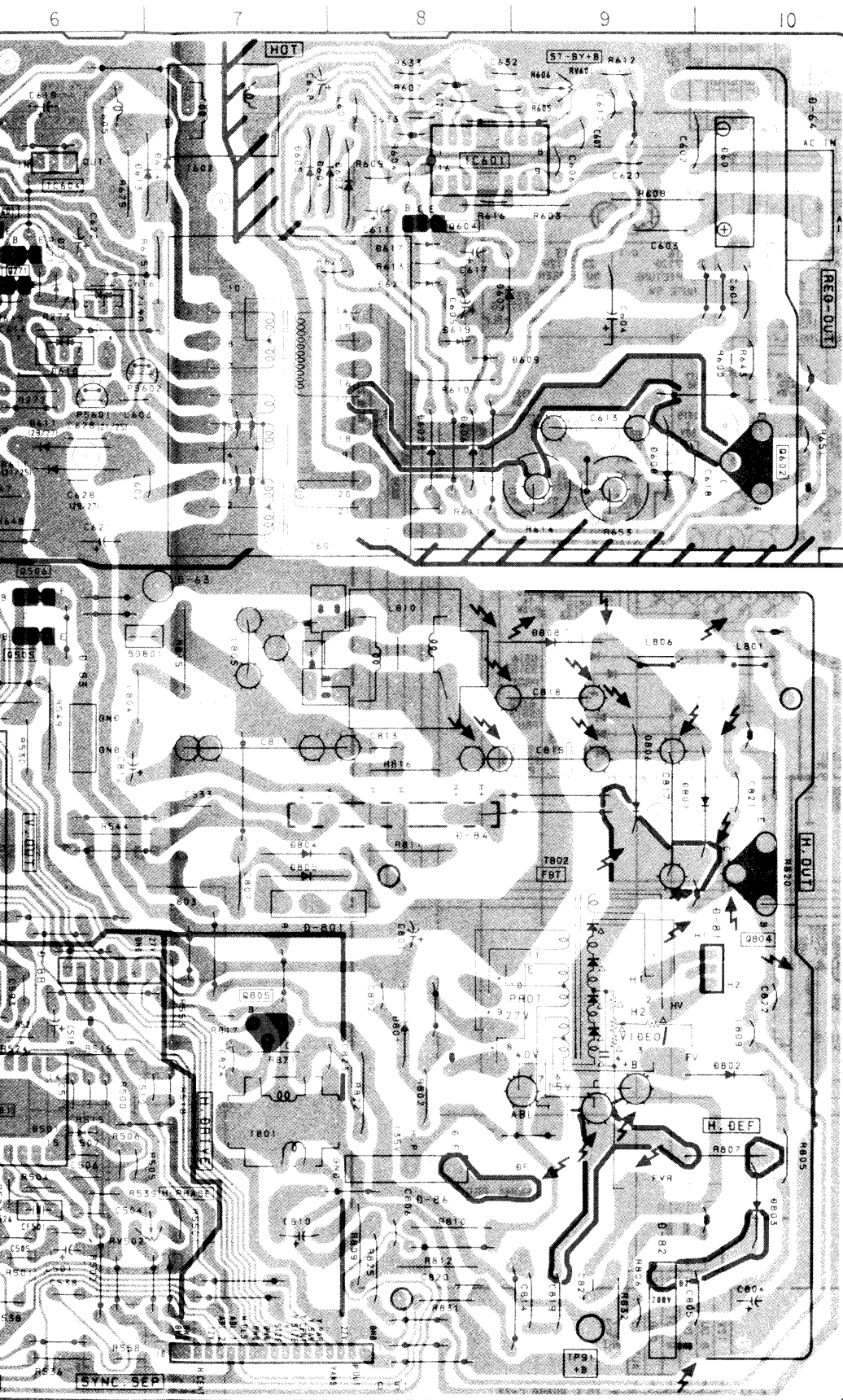


KV-E2511D RM-689 KV-E2511D RM-689

D BOARD

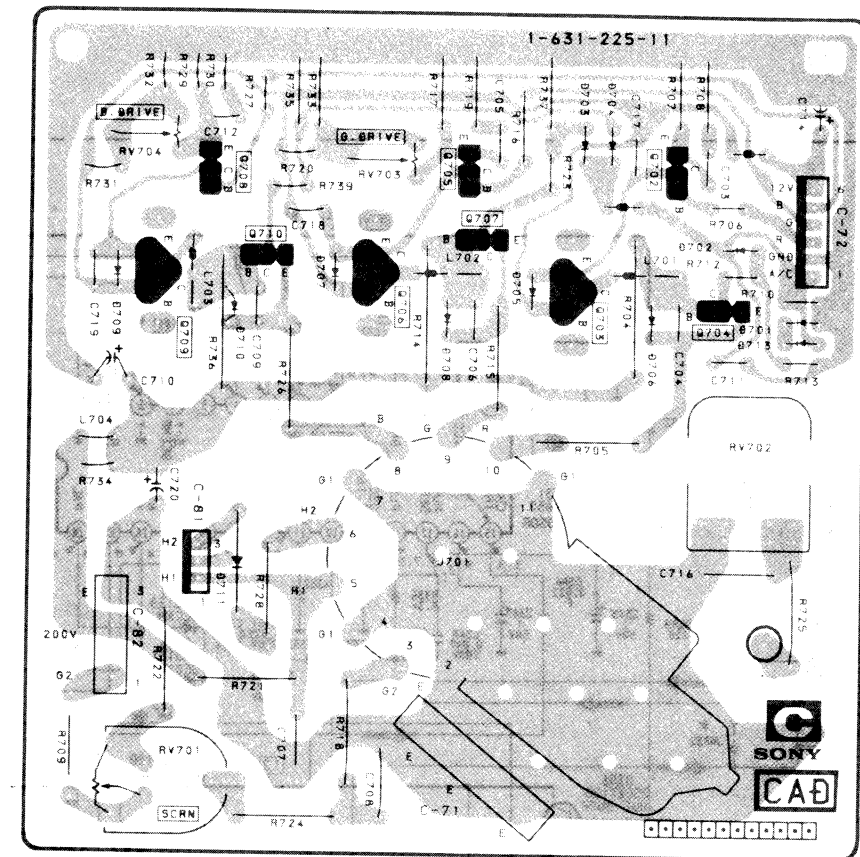
IC		DIODE		
IC001	B-1	0001	A-3	0803 G-10
IC002	C-2	0002	B-3	0804 E-7
IC003	C-1	0003	A-3	0805 E-7
IC005	F-1	0004	C-2	0806 0-9
IC006	F-1	0005	G-1	0806 E-9
IC251	E-4	0006	E-1	0807 0-9
IC261	C-4	0007	A-2	0808 E-10
IC501	F-6	0008	C-2	
IC502	0-6	0009	0-1	VARIABLE RESISTOR
IC601	A-8	0010	B-2	
IC604	A-6	0011	B-2	
IC608	B-4	0271	B-6	RV501 E-5
		0272	B-4	RV502 G-6
		0501	F-6	RV601 A-9
		0504	0-5	
		0506	F-5	
		0508	G-5	
		0509	C-5	
		0511	0-9	TEST POINT
		0512	0-5	
		0513	0-5	TP91 G-9
		0601	A-10	
		0602	C-8	
		0603	A-8	
		0604	A-7	
		0605	A-7	
		0606	C-8	
		0607	B-8	
		0608	C-9	
		0609	B-8	
		0610	B-6	
		0611	C-6	
		0612	B-6	
		0613	A-6	
		0614	A-7	
		0616	C-5	
		0617	B-8	
		0618	C-5	
		0619	B-8	
		0620	C-6	
		0621	B-8	
		0622	C-5	
		0623	B-5	
		0624	B-5	
		0630	C-5	
		0801	F-8	
		0802	F10	
TRANSISTOR				
Q001	B-3			
Q002	B-1			
Q003	0-1			
Q004	0-1			
Q005	B-1			
Q006	B-1			
Q007	B-1			
Q008	B-1			
Q009	B-1			
Q251	E-4			
Q261	C-4			
Q271	B-6			
Q502	F-5			
Q505	0-6			
Q506	C-6			
Q507	G-5			
Q601	A-6			
Q602	C-10			
Q603	B-6			
Q604	B-7			
Q605	C-5			
Q606	B-5			
Q607	B-5			
Q608	B-5			
Q609	B-5			
Q598	G-1			
Q801	G-4			
Q804	E-10			
Q805	F-7			

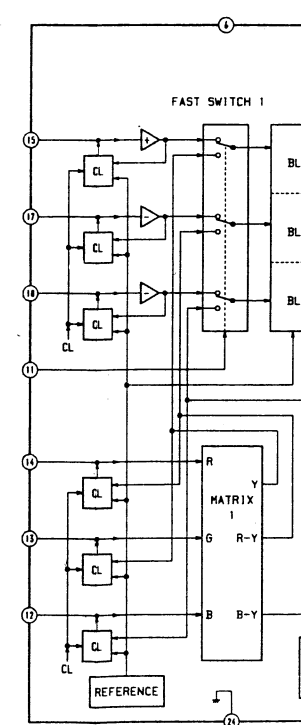




## D BOARD

IC		DIODE			
IC001	B-1	D001	A-3	D803	G-10
IC002	C-2	D002	B-3	D804	E-7
IC003	C-1	D003	A-3	D805	E-7
IC005	F-1	D004	C-2	D806	D-9
IC006	F-1	D005	G-1	D806	E-9
IC251	E-4	D006	E-1	D807	D-9
IC261	C-4	D007	A-2	D808	E-10
IC501	F-6	D008	C-2	VARIABLE RESISTOR	
IC502	D-6	D009	D-1		
IC601	A-8	D010	B-2		
IC604	A-6	D011	B-2		
IC608	B-4	D271	B-6	TEST POINT	
TRANSISTOR		D272	B-4		
		D501	F-6		
		D504	D-5		
Q001	B-3	D506	F-5		
Q002	B-1	D508	G-5		
Q003	D-1	D509	C-5		
Q004	D-1	D511	D-9		
Q005	B-1	D512	D-5		
Q006	B-1	D513	D-5		
Q007	B-1	D601	A-10		
Q008	B-1	D602	C-8		
Q009	B-1	D603	A-8		
Q251	E-4	D604	A-7		
Q261	C-4	D605	A-7		
Q271	B-6	D606	C-8		
Q502	F-5	D607	B-8		
Q505	D-6	D608	C-9		
Q506	C-6	D609	B-8		
Q507	G-5	D610	B-6		
Q601	A-6	D611	C-6		
Q602	C-10	D612	B-6		
Q603	B-6	D613	A-6		
Q604	B-7	D614	A-7		
Q605	C-5	D616	C-5		
Q606	B-5	D617	B-8		
Q607	B-5	D618	C-5		
Q608	B-5	D619	B-8		
Q609	B-5	D620	C-6		
Q598	G-1	D621	B-8		
Q801	G-4	D622	C-5		
Q804	E-10	D623	B-5		
Q805	F-7	D624	B-5		
		D630	C-5		
		D801	F-8		
		D802	F10		

C  
[R · G · B OUT]  
-C Board-

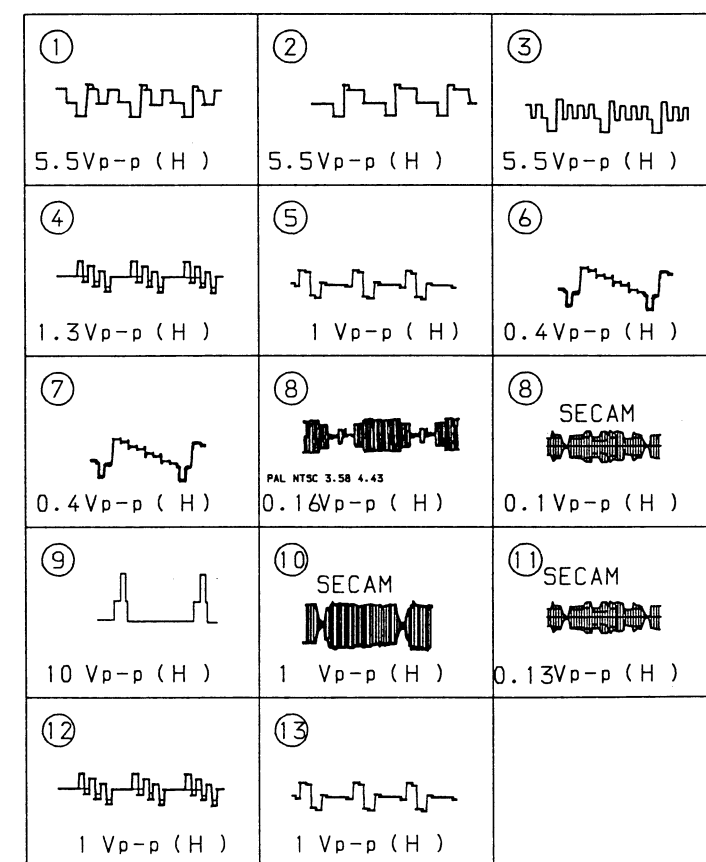




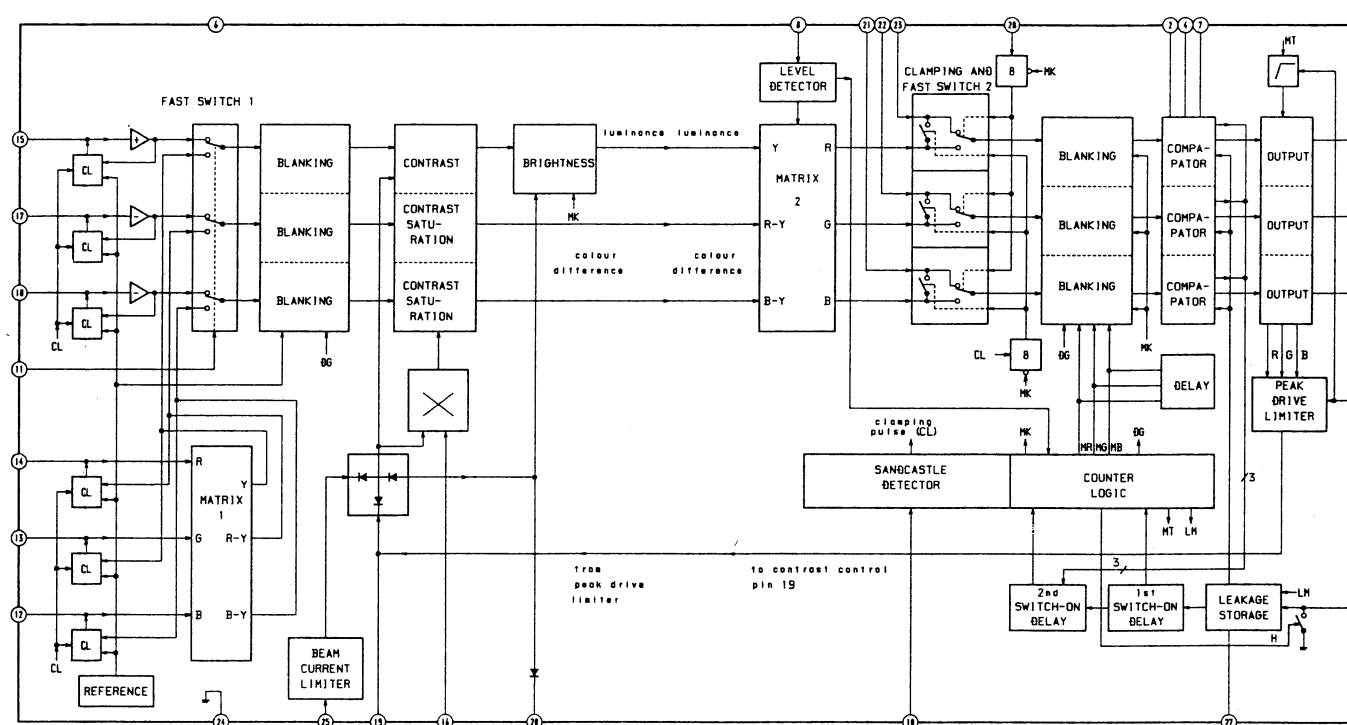
As to the voltage value shown by the mark 電 on the Schematic Diagram, see the another list.

		PAL	SECAM	NTSC 3.58	NTSC 4.43	
IC331	(2)	7.5	7.3	7.5	7.4	
	(4)	7.5	7.2	7.5	7.4	
	(5)	10	10	10	9.8	
	(6)	10	10	10	9.9	
	(7)	4.9	3.4	4.9	4.9	
	(8)	3.7	3	3.8	3.8	
	(9)	3.7	3	3.8	3.8	
	(10)	5	3.4	4.9	4.9	
	Q331	(B)	0.1	0.1	0.1	5.8
		(C)	0.5	0.5	0.5	0
Q334	(B)	4.9	0.1	4.9	4.9	
	(E)	4.3	4.6	4.3	4.3	
Q335	(B)	0.1	5.3	0.1	0.1	
	(F)	4.3	4.6	4.3	4.3	

• WAVEFORMS B BOARD



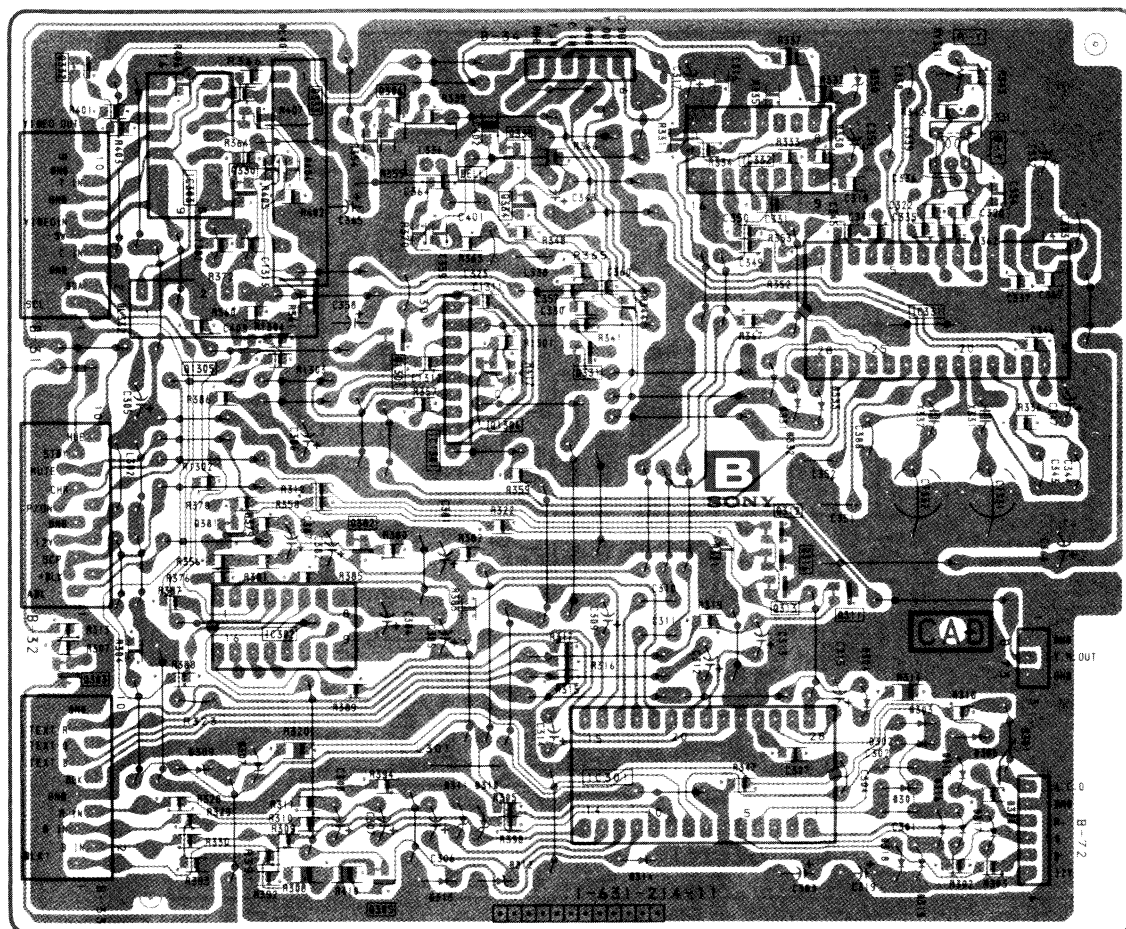
## B BOARD IC301 TDA4580



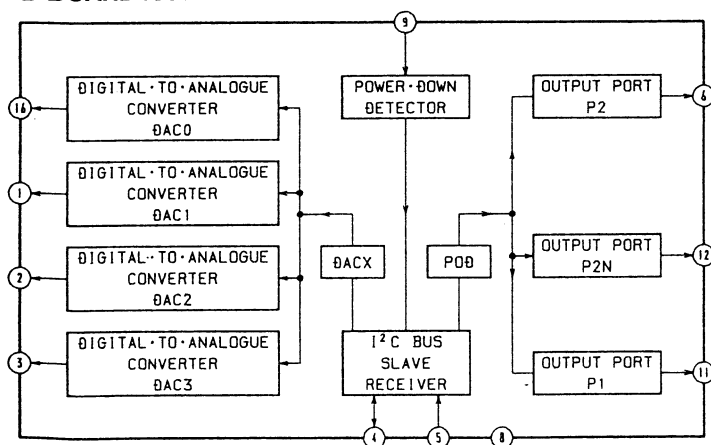
**B**

CHROMA  
DECODER

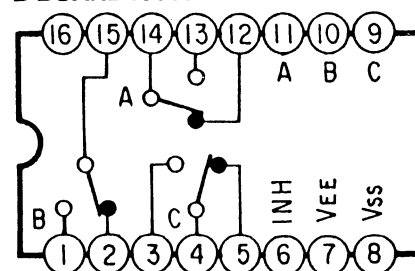
—B Board—



**B BOARD IC302 TDA8442-N3**



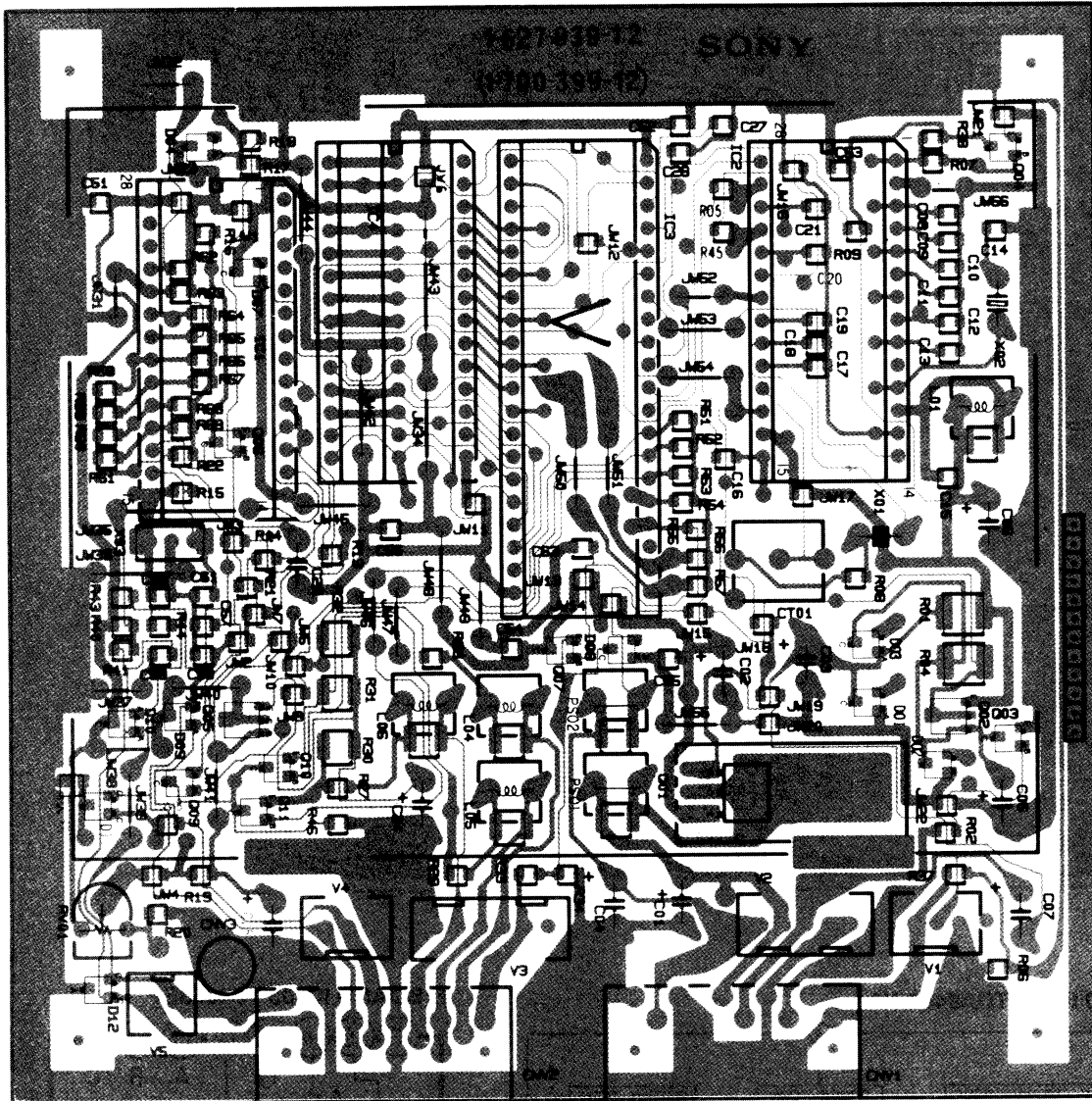
**B BOARD IC303 TC4053BP**

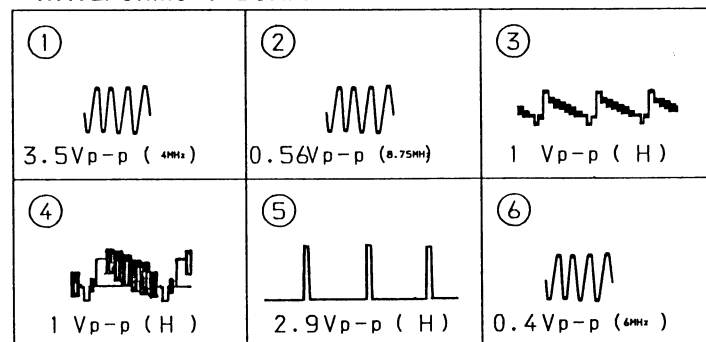






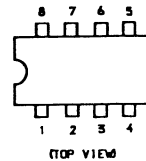
— V Board —



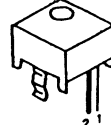


SECTION 6  
EXPLODED VIEWS

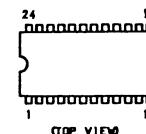
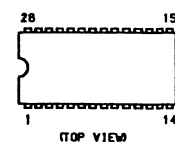
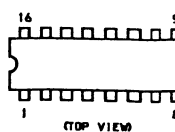
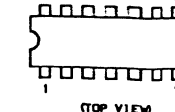
## 5-4. SEMICONDUCTORS

BA4558  
RC4558P  
SDA2546  
TEA2014  
TEA2031A

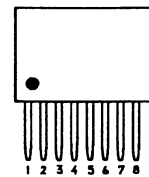
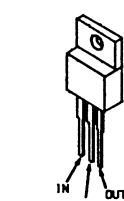
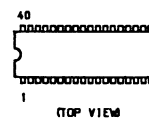
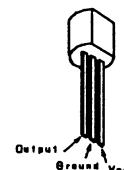
BX1387



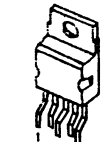
CXA1050A

CXA1114P  
TDA4580  
TDA4650  
TDA6200  
TEA2028B  
2AA5231-V6  
SMAB8461P-W177  
TMM2063P-70HD14040BP  
HD14053BP  
PCF8574P  
TC4040BP  
TC4053BP  
TDA4660  
TDA8442-N3  
TEA2260HD14584BP  
APD4584BC

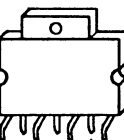
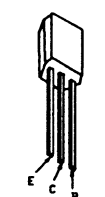
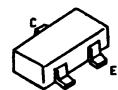
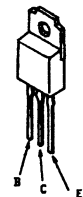
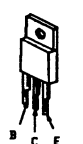
HIC2110

MSF7805  
RC7809FA  
RC7812FA  
PC24M05HF  
PC7812HSDA5243  
SAB2083TA78005AP  
TA78009AP

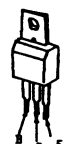
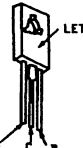
TDA2500



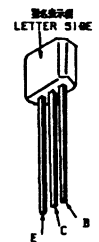
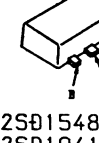
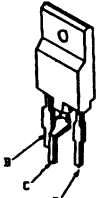
TDA8170

DTA144ES  
DTA114ES  
2SA1162DTC124EK  
MMST2907A  
2SA1162GJA101  
JC501  
2SA1091  
2SA733  
2SD7892SB1185  
2SD17612SD1913SA  
2SB12742SB734  
2SD774

2SC1761

2SC2611  
2SC2688

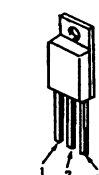
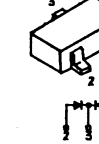
2SC2785

2SC2873Y  
2SD16232SD1548-LB  
2SD1941

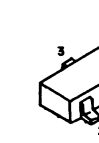
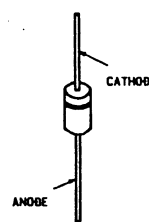
2SD2096



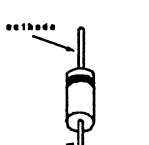
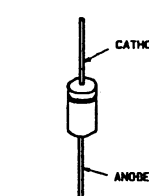
CTU-125

MA152WK  
DAN202K

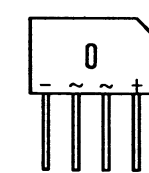
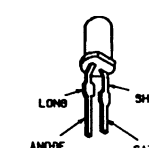
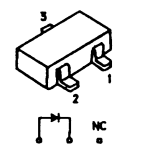
DAP-202K

ERC06-15S  
ERC25-06S  
RU-3AM

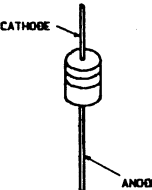
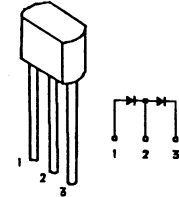
ER029-08J

ES1F  
GP080  
RGP10G

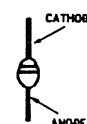
KBU4JL-6088

LD-210VR  
SEL-1222R-CMA3036H  
MA3056M  
MA3068M  
MA3130L  
R03.6M-B2  
R06.8M-B2  
R013M-B1  
R05.6M-B2

MC931



U05G



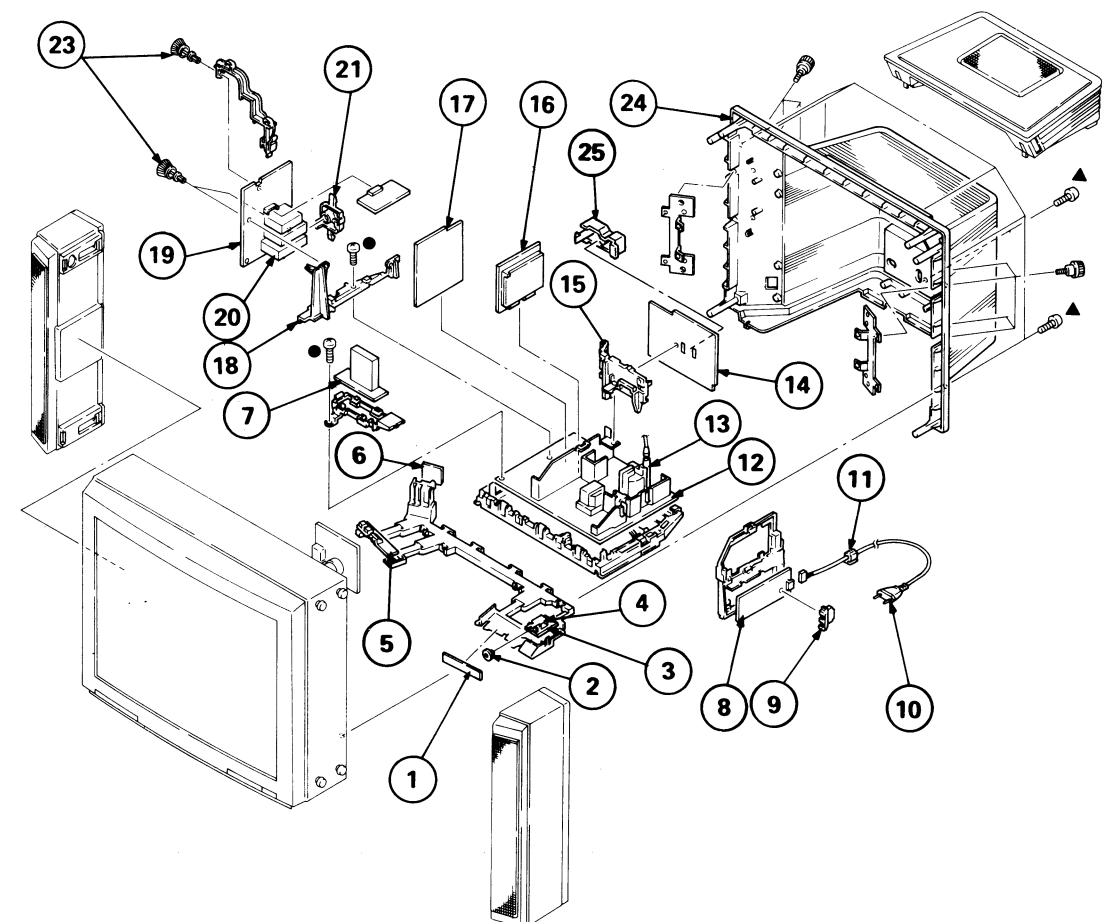
## NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## 6-1. CHASSIS

●: BVTP3 × 12 7-685-648-79

▲: BVTP4 × 16 7-685-663-79

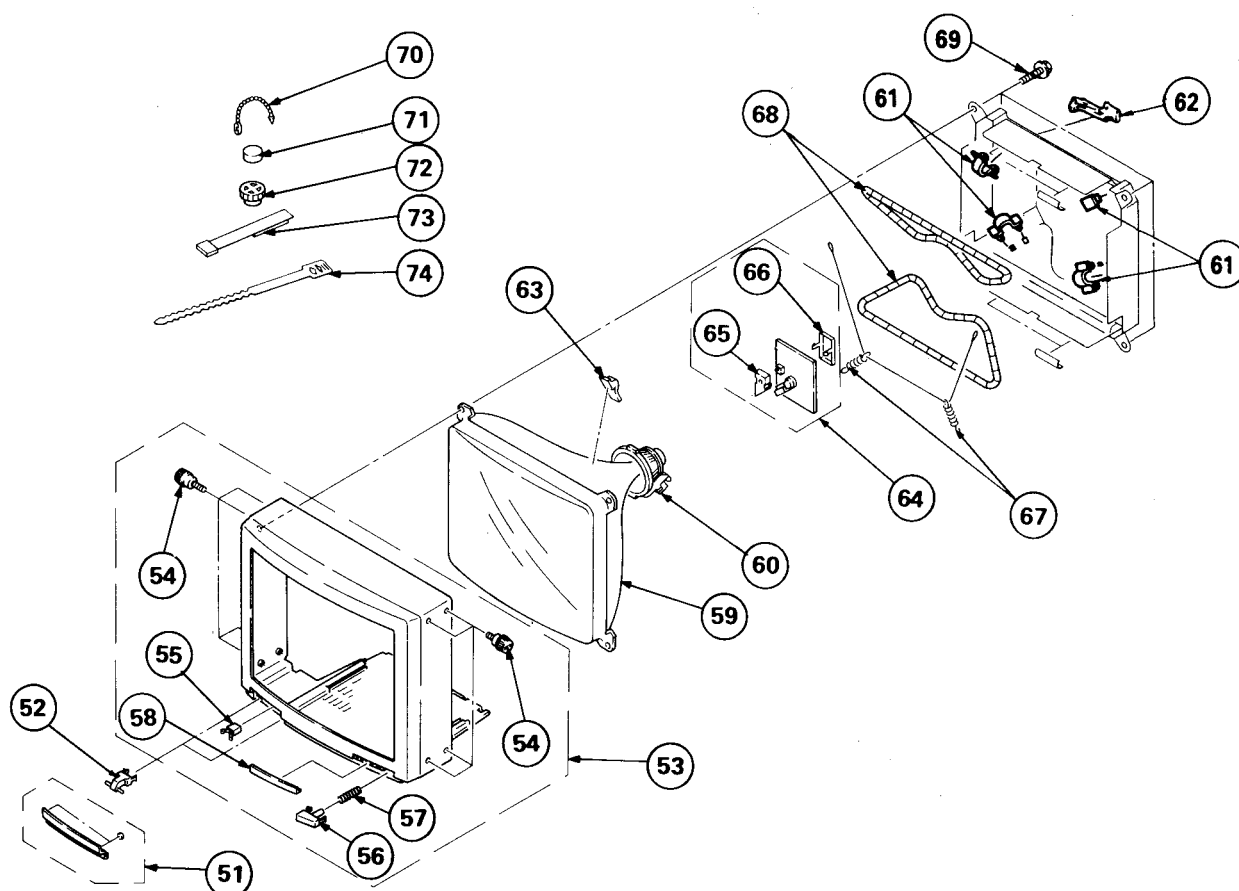



The components identified by shading and mark ▲ are critical for safety. Replace only with part number specified.




REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	*1-631-221-11	H2 BOARD		14	*A-1651-003-A	J1 BOARD, COMPLETE	
2	4-201-011-01	CAP, SWITCH		15	*4-386-624-11	BRACKET, J	
3	*1-631-223-11	F2 BOARD		16	*A-1347-031-A	V BOARD, COMPLETE	
4	▲1-571-433-11	SWITCH, PUSH (AC POWER)		17	*A-1621-001-A	B BOARD, COMPLETE	
5	*1-631-220-11	H1 BOARD		18	*4-386-629-12	BRACKET, A	
6	*1-631-222-11	J2 BOARD		19	*A-1632-001-A	A BOARD, COMPLETE	
7	*1-631-217-11	Y BOARD		20	▲1-465-301-11	TUNER, ET (UV-816 (PLL))	
8	*1-631-216-11	F1 BOARD		21	*4-386-617-01	HOLDER, TERMINAL	
9	*4-386-620-02	COVER, POWER		23	4-386-618-01	RIVET, T TYPE	
10	▲1-575-487-11	CORD, POWER (WITH NOISE FILTER)		24	4-201-017-01	COVER, REAR	
11	▲4-389-201-02	HOLDER, AC CORD		25	4-200-014-01	BRACKET, TERMINAL	
12	*A-1642-002-A	D BOARD, COMPLETE					
13	▲1-439-416-11	TRANSFORMER ASSY, FLYBACK (UX-1600)					

## 6-2. PICTURE TUBE

●: BVTP3 × 12 7-685-648-79



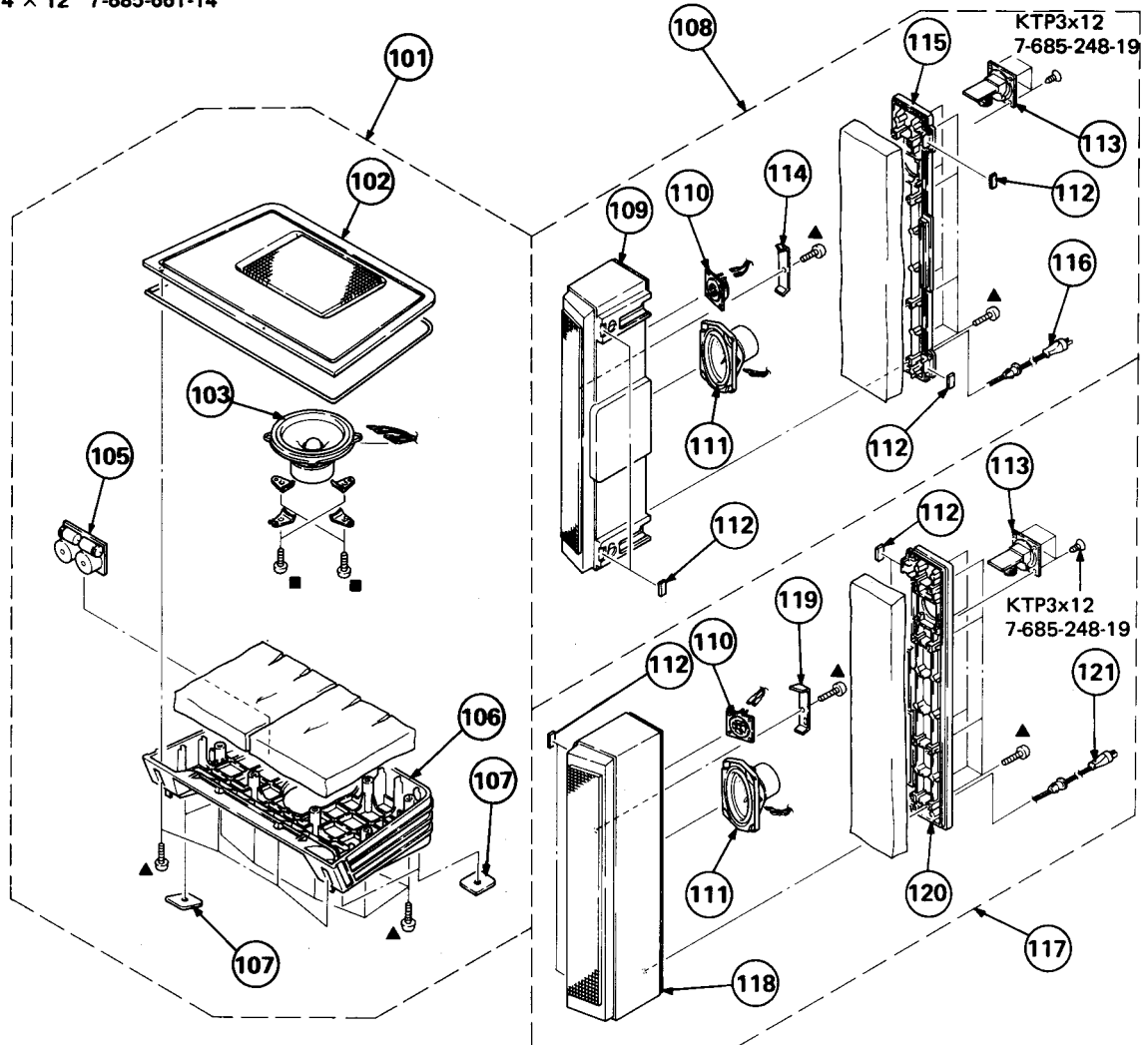
The components identified by shading and mark  are critical for safety. Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
51	X-4201-006-2	DOOR ASSY, CONTROL		64	*A-1638-002-A	C BOARD, COMPLETE	65,66
52	3-703-035-11	SHAFT, LID		65	*4-379-167-01	COVER (MAIN), CV	
53	X-4201-005-1	CABINET ASSY (WITH BEZEL ASSY)	54-58	66	*4-379-160-01	COVER (REAR LID), CV	
54	X-4374-104-1	SCREW (B) ASSY, ORNAMENTAL		67	4-303-774-99	SPRING	
55	4-386-710-01	CATCHER, PUSH		68	 1-426-372-11	COIL, DEMAGNETIZATION	
56	4-200-013-01	BUTTON, POWER		69	4-373-263-01	SCREW (M), PT	
57	4-329-112-21	SPRING		70	4-308-870-00	CLIP, LEAD WIRE	
58	4-200-017-12	WINDOW, ORNAMENTAL		71	1-452-032-00	MAGNET, DISK; 10MM φ	
59	 8-733-224-05	PICTURE TUBE (A59JWC60X)		72	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM φ	
60	 1-451-311-31	DEFLECTION YOKE (Y25FXA)		73	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
61	4-385-916-01	HOLDER (D)		74	3-701-007-00	BAND, BINDING	
62	4-387-216-01	HOLDER LEAD					
63	3-703-961-01	SPACER, DY					

### 6-3. SPEAKER(L, R, WOOFER)

▲: BVTP4 × 16 7-685-663-79

■: BVTP4 × 12 7-685-661-14



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
101	*A-1678-001-A	BOX ASSY, WOOFER		102-107	112	4-200-006-01	CUSHION, FOOT
102	X-4200-004-2	BOARD ASSY, BAFFLE			113	1-236-510-21	NETWORK, DIVIDING
103	1-544-192-11	SPEAKER			114	*4-200-003-02	BRACKET (L), SPEAKER
105	1-236-549-11	NETWORK, DIVIDING			115	4-201-007-01	PANEL (L), REAR
106	4-200-027-01	BOX, WOOFER			116	1-575-025-11	CORD, SPEAKER (WITH PLUG)
107	4-200-009-01	CUSHION, FOOT			117	*A-1678-010-A	BOX ASSY (RIGHT), SPEAKER
108	*A-1678-012-A	BOX ASSY (LEFT), SPEAKER		109-116	118	X-4201-004-1	BOX ASSY (R), SIDE
109	X-4201-003-1	BOX ASSY (L), SIDE			119	*4-200-004-02	BRACKET (R), SPEAKER
110	1-544-203-11	SPEAKER			120	4-201-006-01	PANEL (R), REAR
111	1-544-204-11	SPEAKER			121	1-575-024-11	CORD, SPEAKER (WITH PLUG)

# SECTION 7

## ELECTRICAL PARTS LIST



## NOTE:

The components identified by shading and mark  $\Delta$  are critical for safety.

Replace only with part number specified.

• Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## RESISTORS

• All resistors are in ohms  
• F : nonflammable

When indicating parts by reference number, please include the board name.

## CAPACITORS

• MF :  $\mu$ F, PF :  $\mu$ F

## COILS

• MMH : mH, UH :  $\mu$ H

Note: In this parts list, the mounting diagram is for a different product.

Therefore, an excess of parts is listed.

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
	*A-1347-031-A	V BOARD, COMPLETE *****					
	*4-380-698-01	CASE (MAIN), SHIELD, A1				<DIODE>	
	*4-380-699-01	CASE (UPPER LID), SHIELD, A1		D01	8-719-105-91	DIODE RD5.6M-B2	
	*4-382-701-01	CASE (BOTTOM LID), SHIELD, A2		D02	8-719-106-79	DIODE RD13M-B2	
				D03	8-719-400-18	DIODE MA152WK	
				D04	8-719-105-52	DIODE RD3.6M-B2	
				D07	8-719-106-17	DIODE RD6.8M-B2	
				D08	8-719-106-17	DIODE RD6.8M-B2	
				D09	8-719-400-18	DIODE MA152WK	
				D10	8-719-400-18	DIODE MA152WK	
				D11	8-719-914-44	DIODE DAP202K	
				D12	8-719-914-44	DIODE DAP202K	
						<IC>	
				IC1	8-759-986-92	IC SMAB8461P-W177	
				IC2	8-759-972-96	IC SAA5231-V6	
				IC3	8-759-032-98	IC SDA5243	
				IC4	8-759-230-68	IC TMN2063P-70	
						<COIL>	
				L01	1-408-411-00	INDUCTOR 15UH	
				L04	1-408-407-00	INDUCTOR 6.8UH	
				L05	1-408-407-00	INDUCTOR 6.8UH	
				L06	1-408-407-00	INDUCTOR 6.8UH	
						<IC LINK>	
				PS01 $\Delta$	1-532-679-91	LINK, IC (ICP-N15)	
				PS02 $\Delta$	1-532-727-91	LINK, IC	
						<TRANSISTOR>	
				Q3	8-729-900-53	TRANSISTOR DTC114EK	
				Q01	8-729-808-76	TRANSISTOR 2SD1913SA	
				Q02	8-729-807-50	TRANSISTOR 2SD1623-R	
				Q04	8-729-271-22	TRANSISTOR 2SC2712-G	
				Q05	8-729-807-50	TRANSISTOR 2SD1623-R	
				Q06	8-729-271-22	TRANSISTOR 2SC2712-G	
				Q07	8-729-900-98	TRANSISTOR DTC143TK	
				Q09	8-729-807-87	TRANSISTOR 2SB1295-UL6	
				Q10	8-729-807-87	TRANSISTOR 2SB1295-UL6	
				Q11	8-729-807-87	TRANSISTOR 2SB1295-UL6	
						<RESISTOR>	
				JW1	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JW2	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JW3	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JW4	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JW5	1-216-295-00	METAL GLAZE 0 5% 1/10W	
						<CONNECTOR>	
	CN01	*1-565-393-11	CONNECTOR, BOARD TO BOARD				
	CN02	*1-565-393-11	CONNECTOR, BOARD TO BOARD				
	CN03	*1-508-784-00	PIN, CONNECTOR (5MM PITCH) 1P				
						<TRIMMER>	
	CT01	1-141-392-11	CAP, VAR, TRIMMER (1 GANG)				



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
JW6	1-216-295-00	METAL GLAZE	0 5% 1/10W	R63	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
JW7	1-216-295-00	METAL GLAZE	0 5% 1/10W	R64	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
JW8	1-216-295-00	METAL GLAZE	0 5% 1/10W	R65	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
JW9	1-216-295-00	METAL GLAZE	0 5% 1/10W	R66	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
JW10	1-216-295-00	METAL GLAZE	0 5% 1/10W	R67	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
JW11	1-216-295-00	METAL GLAZE	0 5% 1/10W	R68	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
JW12	1-216-295-00	METAL GLAZE	0 5% 1/10W	R69	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
JW13	1-216-295-00	METAL GLAZE	0 5% 1/10W			<VARIABLE RESISTOR>	
JW14	1-216-295-00	METAL GLAZE	0 5% 1/10W	RV01	1-238-012-11	RES, ADJ, CARBON 1K	
JW15	1-216-295-00	METAL GLAZE	0 5% 1/10W			<CRYSTAL>	
JW16	1-216-295-00	METAL GLAZE	0 5% 1/10W	X01	1-567-162-21	OSCILLATOR, CRYSTAL	
JW17	1-216-295-00	METAL GLAZE	0 5% 1/10W	X02	1-567-495-21	OSCILLATOR, CRYSTAL	
JW18	1-216-295-00	METAL GLAZE	0 5% 1/10W	X03	1-577-082-11	VIBRATOR, CERAMIC	
JW19	1-216-295-00	METAL GLAZE	0 5% 1/10W			*****	
JW20	1-216-295-00	METAL GLAZE	0 5% 1/10W			*A-1621-001-A B BOARD, COMPLETE	
JW21	1-216-295-00	METAL GLAZE	0 5% 1/10W			*****	
JW22	1-216-295-00	METAL GLAZE	0 5% 1/10W			*1-565-393-11 CONNECTOR, BOARD TO BOARD	
JW23	1-216-295-00	METAL GLAZE	0 5% 1/10W			*1-568-878-51 PIN, CONNECTOR 3P	
JW24	1-216-295-00	METAL GLAZE	0 5% 1/10W			*1-568-881-51 PIN, CONNECTOR 6P	
JW25	1-216-295-00	METAL GLAZE	0 5% 1/10W			*1-568-881-61 PIN, CONNECTOR 6P	
R01	1-218-326-11	METAL GLAZE	470 5% 1/2W			<CAPACITOR>	
R02	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C301	1-106-228-00	MYLAR 0.22MF 10% 100V	
R04	1-218-326-11	METAL GLAZE	470 5% 1/2W	C302	1-106-228-00	MYLAR 0.22MF 10% 100V	
R05	1-216-025-00	METAL GLAZE	100 5% 1/10W	C303	1-124-122-11	ELECT 100MF 20% 50V	
R06	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C304	1-106-228-00	MYLAR 0.22MF 10% 100V	
R07	1-216-025-00	METAL GLAZE	100 5% 1/10W	C305	1-124-119-00	ELECT 330MF 20% 16V	
R08	1-216-037-00	METAL GLAZE	330 5% 1/10W	C306	1-124-902-00	ELECT 0.47MF 20% 50V	
R09	1-216-091-00	METAL GLAZE	56K 5% 1/10W	C307	1-124-902-00	ELECT 0.47MF 20% 50V	
R13	1-216-025-00	METAL GLAZE	100 5% 1/10W	C308	1-124-902-00	ELECT 0.47MF 20% 50V	
R14	1-216-025-00	METAL GLAZE	100 5% 1/10W	C309	1-124-902-00	ELECT 0.47MF 20% 50V	
R15	1-216-121-00	METAL GLAZE	1M 5% 1/10W	C310	1-106-220-00	MYLAR 0.1MF 10% 100V	
R16	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	C311	1-106-220-00	MYLAR 0.1MF 10% 100V	
R17	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C312	1-124-902-00	ELECT 0.47MF 20% 50V	
R18	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C313	1-124-902-00	ELECT 0.47MF 20% 50V	
R19	1-216-037-00	METAL GLAZE	330 5% 1/10W	C314	1-124-902-00	ELECT 0.47MF 20% 50V	
R20	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	C315	1-124-791-11	ELECT 1MF 20% 50V	
R27	1-216-013-00	METAL GLAZE	33 5% 1/10W	C316	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
R28	1-216-013-00	METAL GLAZE	33 5% 1/10W	C317	1-124-910-11	ELECT 47MF 20% 50V	
R29	1-216-013-00	METAL GLAZE	33 5% 1/10W	C318	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
R30	1-218-325-11	METAL GLAZE	120 5% 1/4W	C320	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
R31	1-218-325-11	METAL GLAZE	120 5% 1/4W	C322	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
R32	1-218-325-11	METAL GLAZE	120 5% 1/4W	C323	1-102-947-00	CERAMIC 10PF 0.5PF 50V	
R33	1-216-023-00	METAL GLAZE	82 5% 1/10W	C327	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
R34	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C330	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
R37	1-216-025-00	METAL GLAZE	100 5% 1/10W	C331	1-163-077-00	CERAMIC CHIP 0.1MF 50V	
R38	1-216-047-00	METAL GLAZE	820 5% 1/10W	C332	1-126-103-11	ELECT 470MF 20% 16V	
R40	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C333	1-106-375-12	MYLAR 0.022MF 10% 250V	
R41	1-216-041-00	METAL GLAZE	470 5% 1/10W	C334	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
R43	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C335	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
R44	1-216-041-00	METAL GLAZE	470 5% 1/10W	C336	1-102-816-00	CERAMIC 120PF 5% 50V	
R45	1-216-049-00	METAL GLAZE	1K 5% 1/10W	C337	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
R46	1-216-311-00	METAL GLAZE	6.8 5% 1/10W	C338	1-106-220-00	MYLAR 0.1MF 10% 100V	
R51	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C339	1-106-220-00	MYLAR 0.1MF 10% 100V	
R52	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C341	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
R53	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C343	1-106-383-00	MYLAR 0.047MF 10% 100V	
R54	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	C344	1-130-783-00	MYLAR 0.33MF 10% 100V	
R55	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W				
R56	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W				
R57	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W				
R58	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W				
R59	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W				
R60	1-216-076-00	METAL GLAZE	13K 5% 1/10W				
R61	1-216-083-00	METAL GLAZE	27K 5% 1/10W				
R62	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W				

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C345	1-163-123-00	CERAMIC CHIP 180PF	5%	DL332	1-236-062-11	MODULE, Y DELAY LINE	
C346	1-163-033-00	CERAMIC CHIP 0.022MF		DL401	1-415-613-11	DELAY LINE, Y	
C347	1-124-791-11	ELECT 1MF	20%				
C348	1-124-791-11	ELECT 1MF	20%				
C349	1-164-232-11	CERAMIC CHIP 0.01MF					
C350	1-164-232-11	CERAMIC CHIP 0.01MF					
C351	1-106-375-12	MYLAR 0.022MF	10%				
C352	1-106-375-12	MYLAR 0.022MF	10%				
C353	1-106-375-12	MYLAR 0.022MF					
C354	1-124-910-11	ELECT 47MF	20%				
C357	1-163-117-00	CERAMIC CHIP 100PF	5%				
C358	1-124-917-11	ELECT 33MF	20%				
C359	1-163-103-00	CERAMIC CHIP 27PF	5%				
C360	1-164-232-11	CERAMIC CHIP 0.01MF					
C364	1-163-105-00	CERAMIC CHIP 33PF	5%				
C365	1-124-910-11	ELECT 47MF	20%				
C366	1-126-103-11	ELECT 470MF	20%				
C367	1-164-232-11	CERAMIC CHIP 0.01MF					
C381	1-124-902-00	ELECT 0.47MF	20%				
C382	1-124-927-11	ELECT 4.7MF	20%				
C384	1-124-910-11	ELECT 47MF	20%				
C385	1-124-927-11	ELECT 4.7MF	20%				
C386	1-124-927-11	ELECT 4.7MF	20%				
C387	1-124-791-11	ELECT 1MF	20%				
C388	1-106-220-00	MYLAR 0.1MF	10%				
C401	1-101-361-00	CERAMIC 150PF	5%				
C402	1-163-197-00	CERAMIC CHIP 470PF	5%				
C403	1-164-232-11	CERAMIC CHIP 0.01MF					
C1311	1-163-105-00	CERAMIC CHIP 33PF	5%				
C1312	1-163-101-00	CERAMIC CHIP 22PF	5%				
C1313	1-102-953-00	CERAMIC 18PF	5%				
<TRIMMER>							
CT331	1-141-181-11	CAP, TRIMMER					
CT332	1-141-181-11	CAP, TRIMMER					
<DIODE>							
D301	8-719-911-19	DIODE 1SS119					
D302	8-719-911-19	DIODE 1SS119					
D303	8-719-911-19	DIODE 1SS119					
D304	8-719-911-19	DIODE 1SS119					
D305	8-719-911-19	DIODE 1SS119					
D307	8-719-110-23	DIODE RD11ES-B3					
D308	8-719-911-19	DIODE 1SS119					
D309	8-719-911-19	DIODE 1SS119					
D310	8-719-110-23	DIODE RD11ES-B3					
D311	8-719-110-23	DIODE RD11ES-B3					
D312	8-719-110-23	DIODE RD11ES-B3					
D313	8-719-911-19	DIODE 1SS119					
D314	8-719-911-19	DIODE 1SS119					
D315	8-719-911-19	DIODE 1SS119					
D316	8-719-911-19	DIODE 1SS119					
D317	8-719-911-19	DIODE 1SS119					
D318	8-719-911-19	DIODE 1SS119					
D319	8-719-911-19	DIODE 1SS119					
D320	8-719-911-19	DIODE 1SS119					
D331	8-719-911-19	DIODE 1SS119					
D332	8-719-911-19	DIODE 1SS119					
D333	8-719-911-19	DIODE 1SS119					
D350	8-719-109-90	DIODE RD5.6ES-B3					
<IC>							
IC301	8-759-979-85	IC TDA4580-V4					
IC302	8-759-980-60	IC TDA8442-N3					
IC303	8-759-240-53	IC TC4053BP					
IC331	8-759-990-29	IC TDA4650					
IC332	8-759-990-30	IC TDA4660					
IC1301	1-235-534-21	CONTROL MODULE, PICTURE					
<COIL>							
L301	1-410-868-21	INDUCTOR 4.7UH					
L302	1-410-868-21	INDUCTOR 4.7UH					
L331	1-404-554-11	COIL					
L336	1-404-554-11	COIL					
L338	1-408-409-00	INDUCTOR 10UH					
L1301	1-408-425-00	INDUCTOR 220UH					
L1302	1-408-419-00	INDUCTOR 68UH					
<TRANSISTOR>							
Q303	8-729-271-22	TRANSISTOR 2SC2712-G					
Q305	8-729-901-00	TRANSISTOR DTC124EK					
Q306	8-729-271-22	TRANSISTOR 2SC2712-G					
Q311	8-729-271-22	TRANSISTOR 2SC2712-G					
Q312	8-729-271-22	TRANSISTOR 2SC2712-G					
Q313	8-729-271-22	TRANSISTOR 2SC2712-G					
Q316	8-729-271-22	TRANSISTOR 2SC2712-G					
Q330	8-729-216-22	TRANSISTOR 2SA1162					
Q331	8-729-901-00	TRANSISTOR DTC124EK					
Q332	8-729-216-22	TRANSISTOR 2SA1162					
Q333	8-729-216-22	TRANSISTOR 2SA1162					
Q334	8-729-271-22	TRANSISTOR 2SC2712-G					
Q335	8-729-271-22	TRANSISTOR 2SC2712-G					
Q336	8-729-900-36	TRANSISTOR DTC124ES					
Q381	8-729-901-00	TRANSISTOR DTC124EK					
Q382	8-729-271-22	TRANSISTOR 2SC2712-G					
Q1301	8-729-901-00	TRANSISTOR DTC124EK					
Q1305	8-729-271-22	TRANSISTOR 2SC2712-G					
Q1306	8-729-271-22	TRANSISTOR 2SC2712-G					
<RESISTOR>							
R301	1-216-033-00	METAL GLAZE 220 5%	1/10W				
R302	1-216-033-00	METAL GLAZE 220 5%	1/10W				
R303	1-216-033-00	METAL GLAZE 220 5%	1/10W				
R304	1-216-033-00	METAL GLAZE 220 5%	1/10W				
R305	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W				
R307	1-216-097-00	METAL GLAZE 100K 5%	1/10W				
R308	1-216-184-00	METAL GLAZE 270 5%	1/8W				
R309	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R310	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R311	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R312	1-216-033-00	METAL GLAZE 220 5%	1/10W				
R313	1-216-081-00	METAL GLAZE 22K 5%	1/10W				
R314	1-216-182-00	METAL GLAZE 220 5%	1/8W				
R315	1-216-031-00	METAL GLAZE 180 5%	1/10W				
R316	1-216-031-00	METAL GLAZE 180 5%	1/10W				
R317	1-216-031-00	METAL GLAZE 180 5%	1/10W				
R318	1-216-073-00	METAL GLAZE 10K 5%	1/10W				
R319	1-216-033-00	METAL GLAZE 220 5%	1/10W				



**B****F1**

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
R320	1-216-198-00	METAL GLAZE 1K 5%	1/8W	R407	1-216-047-00	METAL GLAZE 820 5%	1/10W
R321	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R410	1-216-184-00	METAL GLAZE 270 5%	1/8W
R322	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R412	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R323	1-249-422-11	CARBON 2.7K 5%	1/4W	R1301	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R324	1-249-429-11	CARBON 10K 5%	1/4W	R1302	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R325	1-249-429-11	CARBON 10K 5%	1/4W	R1303	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R328	1-216-009-00	METAL GLAZE 22 5%	1/10W	R1304	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R329	1-216-009-00	METAL GLAZE 22 5%	1/10W			<VARIABLE RESISTOR>	
R330	1-216-009-00	METAL GLAZE 22 5%	1/10W	RV331	1-238-012-11	RES, ADJ, CARBON 1K	
R331	1-216-001-00	METAL GLAZE 10 5%	1/10W			<CRYSTAL>	
R332	1-216-184-00	METAL GLAZE 270 5%	1/8W	X331	1-567-307-11	OSCILLATOR, CRYSTAL	
R333	1-216-121-00	METAL GLAZE 1M 5%	1/10W	X332	1-567-131-00	OSCILLATOR, CRYSTAL	
R334	1-216-073-00	METAL GLAZE 10K 5%	1/10W			*****	
R335	1-216-073-00	METAL GLAZE 10K 5%	1/10W			*1-631-216-11 F1 BOARD	
R336	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W			*****	
R337	1-216-184-00	METAL GLAZE 270 5%	1/8W			*1-508-765-00 PIN, CONNECTOR (5MM PITCH) 3P	
R338	1-216-001-00	METAL GLAZE 10 5%	1/10W			*1-508-786-00 PIN, CONNECTOR (5MM PITCH) 2P	
R339	1-216-033-00	METAL GLAZE 220 5%	1/10W			*1-565-395-11 PIN, CONNECTOR 3P	
R340	1-247-903-00	CARBON 1M 5%	1/4W			*1-566-664-11 PIN, CONNECTOR 4P	
R341	1-216-031-00	METAL GLAZE 180 5%	1/10W			*1-568-106-11 PIN, CONNECTOR 4P	
R342	1-216-041-00	METAL GLAZE 470 5%	1/10W			*1-568-878-51 PIN, CONNECTOR 3P	
R344	1-216-089-00	METAL GLAZE 47K 5%	1/10W			<CAPACITOR>	
R346	1-216-202-00	METAL GLAZE 1.5K 5%	1/8W			C1601 $\Delta$ 1-136-518-11 FILM 0.33MF 20% 300V	
R347	1-216-073-00	METAL GLAZE 10K 5%	1/10W			C1602 $\Delta$ 1-136-519-11 FILM 0.47MF 20% 300V	
R348	1-216-089-00	METAL GLAZE 47K 5%	1/10W			C1603 $\Delta$ 1-162-578-51 CERAMIC 0.0047MF 20% 400V	
R354	1-216-033-00	METAL GLAZE 220 5%	1/10W			C1604 $\Delta$ 1-162-578-51 CERAMIC 0.0047MF 20% 400V	
R355	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W			C1605 $\Delta$ 1-162-578-51 CERAMIC 0.0047MF 20% 400V	
R356	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W			C1606 $\Delta$ 1-162-578-51 CERAMIC 0.0047MF 20% 400V	
R357	1-216-033-00	METAL GLAZE 220 5%	1/10W			C1607 $\Delta$ 1-161-964-61 CERAMIC 0.0047MF 250V	
R358	1-216-033-00	METAL GLAZE 220 5%	1/10W			<FUSE>	
R359	1-216-089-00	METAL GLAZE 47K 5%	1/10W			F1601 $\Delta$ 1-532-350-11 FUSE, TIME-LAG 4A/250V	
R360	1-216-089-00	METAL GLAZE 47K 5%	1/10W			1-533-087-00 HOLDER, FUSE: F1601	
R361	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W			<TRANSFORMER>	
R362	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W			LF1601 $\Delta$ 1-421-866-12 LFT	
R363	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W			LF1602 $\Delta$ 1-421-776-11 LFT	
R364	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W			LF1603 $\Delta$ 1-421-592-21 TRANSFORMER, FERRITE	
R365	1-216-047-00	METAL GLAZE 820 5%	1/10W			<RESISTOR>	
R366	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W			R1601 $\Delta$ 1-246-513-75 CARBON 47K 5% 1/4W	
R367	1-216-033-00	METAL GLAZE 220 5%	1/10W			R1602 $\Delta$ 1-244-945-91 CARBON 1M 5% 1/2W	
R370	1-216-033-00	METAL GLAZE 220 5%	1/10W			R1603 $\Delta$ 1-217-328-11 WIREWOUND 2.7 10% 7W F	
R372	1-216-023-00	METAL GLAZE 82 5%	1/10W			R1604 $\Delta$ 1-246-513-75 CARBON 47K 5% 1/4W	
R376	1-216-073-00	METAL GLAZE 10K 5%	1/10W			R1605 $\Delta$ 1-218-265-91 METAL GLAZE 8.2K 5% 1W	
R378	1-216-097-00	METAL GLAZE 100K 5%	1/10W			<THERMISTOR>	
R379	1-216-097-00	METAL GLAZE 100K 5%	1/10W			THP601 $\Delta$ 1-808-059-31 THERMISTOR, POSITIVE	
R380	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W			*****	
R381	1-216-093-00	METAL GLAZE 68K 5%	1/10W				
R382	1-216-103-00	METAL GLAZE 180K 5%	1/10W				
R383	1-216-115-00	METAL GLAZE 560K 5%	1/10W				
R385	1-216-085-00	METAL GLAZE 33K 5%	1/10W				
R386	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W				
R387	1-216-049-00	METAL GLAZE 1K 5%	1/10W				
R388	1-216-049-00	METAL GLAZE 1K 5%	1/10W				
R389	1-216-101-00	METAL GLAZE 150K 5%	1/10W				
R391	1-216-023-00	METAL GLAZE 82 5%	1/10W				
R392	1-216-019-00	METAL GLAZE 56 5%	1/10W				
R393	1-216-019-00	METAL GLAZE 56 5%	1/10W				
R394	1-216-019-00	METAL GLAZE 56 5%	1/10W				
R398	1-216-081-00	METAL GLAZE 22K 5%	1/10W				
R401	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W				
R402	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W				
R403	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R404	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W				
R405	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W				
R406	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W				

F2

A

C

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
*1-631-223-11	F2 BOARD			R111	1-249-423-11	CARBON	3.3K 5% 1/4W
	*****			R116	1-249-407-11	CARBON	150 5% 1/4W
*1-566-664-11	PIN, CONNECTOR 4P			R118	1-249-435-11	CARBON	33K 5% 1/4W
				R128	1-249-406-11	CARBON	120 5% 1/4W
				R129	1-249-421-11	CARBON	2.2K 5% 1/4W
	<SWITCH>			R130	1-249-421-11	CARBON	2.2K 5% 1/4W
S1701A	1-571-433-11	SWITCH, PUSH (AC POWER)		R157	1-249-417-11	CARBON	1K 5% 1/4W
	*****			R158	1-249-409-11	CARBON	220 5% 1/4W
				R159	1-249-409-11	CARBON	220 5% 1/4W
				R161	1-249-437-11	CARBON	47K 5% 1/4W
*A-1632-001-A	A BOARD, COMPLETE			R162	1-249-440-11	CARBON	82K 5% 1/4W
	*****			R163	1-249-440-11	CARBON	82K 5% 1/4W
*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)			R164	1-249-430-11	CARBON	12K 5% 1/4W
*1-564-881-11	PLUG, CONNECTOR 4P			R165	1-249-430-11	CARBON	12K 5% 1/4W
*1-564-886-11	PLUG, CONNECTOR 9P			R167	1-249-422-11	CARBON	2.7K 5% 1/4W
*1-565-503-11	CONNECTOR, BOARD TO BOARD 12P			R168	1-249-437-11	CARBON	47K 5% 1/4W
*1-566-659-11	CONNECTOR, HINGE (SOCKET) 18P			R169	1-249-422-11	CARBON	2.7K 5% 1/4W
				R181	1-249-417-11	CARBON	1K 5% 1/4W
				R182	1-249-425-11	CARBON	4.7K 5% 1/4W
				R193	1-249-429-11	CARBON	10K 5% 1/4W
	<CAPACITOR>			R194	1-249-401-11	CARBON	47 5% 1/4W
C101	1-126-233-11	ELECT	22MF	20%	50V		
C102	1-126-103-11	ELECT	470MF	20%	16V		
C104	1-124-910-11	ELECT	47MF	20%	50V		
C106	1-126-233-11	ELECT	22MF	20%	50V		
C108	1-136-165-00	FILM	0.1MF	5%	50V		
C109	1-102-824-00	CERAMIC	470PF	5%	50V		
C111	1-124-925-11	ELECT	2.2MF	20%	50V		
C115	1-124-925-11	ELECT	2.2MF	20%	50V		
C127	1-124-122-11	ELECT	100MF	20%	50V		
C128	1-124-910-11	ELECT	47MF	20%	50V		
C129	1-124-910-11	ELECT	47MF	20%	50V		
C138	1-136-165-00	FILM	0.1MF	5%	50V		
C171	1-102-114-00	CERAMIC	470PF	10%	50V		
C172	1-102-114-00	CERAMIC	470PF	10%	50V		
C177	1-102-074-00	CERAMIC	0.001MF	10%	50V		
C181	1-101-004-00	CERAMIC	0.01MF		50V		
	<IC>						
IC103	8-759-979-62	IC PCF8574					
	<COIL>						
L100	1-410-116-11	INDUCTOR	0.56MMH				
L101	1-408-225-00	INDUCTOR	3.3UH				
L102	1-408-413-00	INDUCTOR	22UH				
L107	1-408-397-00	INDUCTOR	1UH				
	<TRANSISTOR>						
Q113	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q114	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q115	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q116	8-729-119-78	TRANSISTOR 2SC2785-HFE					
Q125	8-729-900-89	TRANSISTOR DTC144ES					
Q126	8-729-900-65	TRANSISTOR DTA144ES					
Q181	8-729-119-78	TRANSISTOR 2SC2785-HFE					
	<RESISTOR>						
R101	1-249-405-11	CARBON	100 5%	1/4W			
R105	1-249-432-11	CARBON	18K 5%	1/4W			
R107	1-249-433-11	CARBON	22K 5%	1/4W			
R108	1-249-432-11	CARBON	18K 5%	1/4W			
R110	1-249-429-11	CARBON	10K 5%	1/4W			



The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
<DIODE>				R733	1-249-415-11	CARBON 680 5% 1/4W	
D701	8-719-110-14	DIODE RD9.1ES-B3		R734	1-249-405-11	CARBON 100 5% 1/4W	
D702	8-719-911-19	DIODE 1SS119		R735	1-215-493-00	METAL 1M 1% 1/6W	
D703	8-719-911-19	DIODE 1SS119		R736	1-216-486-00	METAL OXIDE 8.2K 5% 3W	F
D704	8-719-911-19	DIODE 1SS119		R737	1-215-491-00	METAL 820K 1% 1/6W	
D705	8-719-911-19	DIODE 1SS119		R739	1-249-417-11	CARBON 1K 5% 1/4W	
D706	8-719-911-19	DIODE 1SS119		<VARIABLE RESISTOR>			
D707	8-719-911-19	DIODE 1SS119		RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M	
D708	8-719-911-19	DIODE 1SS119		RV702	1-230-619-11	RES, ADJ, METAL GLAZE 110M	
D709	8-719-911-19	DIODE 1SS119		RV703	1-237-749-11	RES, ADJ, CARBON 2200	
D710	8-719-911-19	DIODE 1SS119		RV704	1-237-749-11	RES, ADJ, CARBON 2200	
D711	8-719-300-33	DIODE RU-3AM		*****			
D713	8-719-911-19	DIODE 1SS119		*A-1642-002 A	D BOARD, COMPLETE		
<JACK>				*****			
J701	1-526-798-51	SOCKET, PICTURE TUBE		*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P		
<COIL>				*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P		
L704	1-410-878-21	INDUCTOR 33UH		*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)		
<TRANSISTOR>				*1-564-038-00	CONNECTOR PLUG, DY (MINI) 6P		
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE		*1-564-505-11	PLUG, CONNECTOR 2P		
Q703	8-729-326-11	TRANSISTOR 2SC2611		*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR		
Q704	8-729-200-17	TRANSISTOR 2SA1091		*1-565-395-11	PIN, CONNECTOR 3P		
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE		*1-566-367-11	CONNECTOR, HINGE (RECEPTACLE)		
Q706	8-729-326-11	TRANSISTOR 2SC2611		*1-566-660-11	CONNECTOR, HINGE (PLUG) 18P		
Q707	8-729-200-17	TRANSISTOR 2SA1091		*1-568-878-51	PIN, CONNECTOR 3P		
Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE		*1-568-879-61	PIN, CONNECTOR 4P		
Q709	8-729-326-11	TRANSISTOR 2SC2611		*1-568-881-51	PIN, CONNECTOR 6P		
Q710	8-729-200-17	TRANSISTOR 2SA1091		*1-568-881-61	PIN, CONNECTOR 6P		
<RESISTOR>				*1-568-882-51	PIN, CONNECTOR 7P		
R704	1-216-486-00	METAL OXIDE 8.2K 5% 3W	F	*1-568-882-71	PIN, CONNECTOR 7P		
R705	1-202-824-00	SOLID 3.3K 10% 1/2W		4-200-001-01	HOLDER, IC		
R706	1-249-409-11	CARBON 220 5% 1/4W		*4-341-751-01	EYELET		
R707	1-249-412-11	CARBON 390 5% 1/4W		*4-341-752-01	EYELET		
R708	1-249-401-11	CARBON 47 5% 1/4W		*4-368-683-01	SPRING		
R709	1-202-844-00	SOLID 330K 10% 1/2W		<CAPACITOR>			
R710	1-215-465-00	METAL 68K 1% 1/6W		C002	1-102-074-00	CERAMIC 0.001MF 10% 50V	
R712	1-249-417-11	CARBON 1K 5% 1/4W		C003	1-123-875-11	ELECT 10MF 20% 50V	
R713	1-215-471-00	METAL 120K 1% 1/6W		C004	1-124-120-11	ELECT 220MF 20% 16V	
R714	1-216-486-00	METAL OXIDE 8.2K 5% 3W	F	C005	1-124-791-11	ELECT 1MF 20% 50V	
R715	1-202-824-00	SOLID 3.3K 10% 1/2W		C006	1-102-978-00	CERAMIC 220PF 5% 50V	
R716	1-249-409-11	CARBON 220 5% 1/4W		C007	1-102-978-00	CERAMIC 220PF 5% 50V	
R717	1-249-415-11	CARBON 680 5% 1/4W		C008	1-101-880-00	CERAMIC 47PF 5% 50V	
R718	1-202-814-11	SOLID 33K 10% 1/2W		C009	1-101-880-00	CERAMIC 47PF 5% 50V	
R719	1-249-401-11	CARBON 47 5% 1/4W		C010	1-124-120-11	ELECT 220MF 20% 16V	
R720	1-249-423-11	CARBON 3.3K 5% 1/4W		C011	1-101-004-00	CERAMIC 0.01MF 50V	
R721	1-202-842-11	SOLID 220K 10% 1/2W		C012	1-123-875-11	ELECT 10MF 20% 50V	
R722	1-202-848-00	SOLID 680K 10% 1/2W		C013	1-106-220-00	MYLAR 0.1MF 10% 100V	
R723	1-249-417-11	CARBON 1K 5% 1/4W		C014	1-106-220-00	MYLAR 0.1MF 10% 100V	
R724	1-202-846-00	SOLID 470K 10% 1/2W		C015	1-124-902-00	ELECT 0.47MF 20% 50V	
R725	1-202-838-00	SOLID 100K 10% 1/2W		C016	1-101-361-00	CERAMIC 150PF 5% 50V	
R726	1-202-824-00	SOLID 3.3K 10% 1/2W		C017	1-106-220-00	MYLAR 0.1MF 10% 100V	
R727	1-249-409-11	CARBON 220 5% 1/4W		C018	1-102-980-00	CERAMIC 270PF 5% 50V	
R728	1-216-347-11	METAL OXIDE 0.68 5% 1W	F	C019	1-106-383-00	MYLAR 0.047MF 10% 100V	
R729	1-249-416-11	CARBON 820 5% 1/4W		C020	1-124-917-11	ELECT 33MF 20% 50V	
R730	1-249-401-11	CARBON 47 5% 1/4W		C021	1-102-973-00	CERAMIC 100PF 5% 50V	
R731	1-249-423-11	CARBON 3.3K 5% 1/4W		C022	1-101-004-00	CERAMIC 0.01MF 50V	
R732	1-249-415-11	CARBON 680 5% 1/4W		C023	1-102-973-00	CERAMIC 100PF 5% 50V	
				C024	1-102-973-00	CERAMIC 100PF 5% 50V	
				C025	1-102-973-00	CERAMIC 100PF 5% 50V	
				C027	1-124-910-11	ELECT 47MF 20% 50V	

The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

KV-E2511D  
RM-689

D

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
C251	1-124-499-11	ELECT	1MF 20% 50V	C620	1-136-173-00	FILM	0.47MF 5% 50V
C252	1-126-233-11	ELECT	22MF 20% 50V	C621	1-124-347-00	ELECT	100MF 20% 160V
C253	1-102-074-00	CERAMIC	0.001MF 10% 50V	C622	1-124-556-11	ELECT	2200MF 20% 16V
C254	1-106-220-00	MYLAR	0.1MF 10% 100V	C623	1-124-910-11	ELECT	47MF 20% 50V
C255	1-124-636-00	ELECT	3300MF 20% 25V	C624	1-124-122-11	ELECT	100MF 20% 50V
C261	1-124-791-11	ELECT	1MF 20% 50V	C625	1-124-360-00	ELECT	1000MF 20% 16V
C262	1-126-233-11	ELECT	22MF 20% 50V	C626	1-123-875-11	ELECT	10MF 20% 50V
C263	1-102-074-00	CERAMIC	0.001MF 10% 50V	C627	1-108-614-11	MYLAR	0.001MF 10% 100V
C264	1-106-220-00	MYLAR	0.1MF 10% 100V	C628	1-162-116-00	CERAMIC	680PF 10% 2KV
C265	1-124-564-11	ELECT	4700MF 20% 25V	C631	1-124-927-11	ELECT	4.7MF 20% 50V
C501	1-124-927-11	ELECT	4.7MF 20% 50V	C632	1-102-973-00	CERAMIC	100PF 5% 50V
C502	1-124-927-11	ELECT	4.7MF 20% 50V	C633	1-102-973-00	CERAMIC	100PF 5% 50V
C503	1-106-371-00	MYLAR	0.015MF 10% 400V	C801	1-126-105-11	ELECT	1000MF 20% 35V
C504	1-101-361-00	CERAMIC	150PF 5% 50V	C802	1-102-030-00	CERAMIC	330PF 10% 500V
C505	1-108-794-11	MYLAR	0.0015MF 5% 50V	C804	1-123-948-00	ELECT	22MF 20% 250V
C506	1-106-375-12	MYLAR	0.022MF 10% 250V	C805	1-162-114-00	CERAMIC	0.0047MF 2KV
C507	1-130-783-00	MYLAR	0.33MF 10% 100V	C806	1-106-220-00	MYLAR	0.1MF 10% 100V
C508	1-106-375-12	MYLAR	0.022MF 10% 250V	C807	1-106-395-00	MYLAR	0.15MF 10% 200V
C509	1-106-220-00	MYLAR	0.1MF 10% 100V	C810	1-123-024-21	ELECT	33MF 160V
C510	1-161-959-00	CERAMIC	22PF 10% 500V	C811	1-136-113-00	FILM	2MF 5% 200V
C511	1-108-620-11	MYLAR	0.0033MF 10% 100V	C812	1-124-634-11	ELECT	1MF 20% 250V
C512	1-106-220-00	MYLAR	0.1MF 10% 100V	C813	1-102-212-00	CERAMIC	820PF 10% 500V
C513	1-102-978-00	CERAMIC	220PF 5% 50V	C814 $\Delta$	1-161-731-11	CERAMIC	0.001MF 10% 2KV
C514	1-106-228-00	MYLAR	0.22MF 10% 100V	C815	1-136-111-00	FILM	1MF 5% 200V
C515	1-124-791-11	ELECT	1MF 20% 50V	C817	1-136-565-11	FILM	0.015MF 3% 1.4KV
C516	1-108-614-11	MYLAR	0.001MF 10% 100V	C818	1-136-759-11	FILM	0.039MF 10% 630V
C517	1-124-252-00	ELECT	0.33MF 20% 50V	C819 $\Delta$	1-161-731-11	CERAMIC	0.001MF 10% 2KV
C518	1-124-902-00	ELECT	0.47MF 20% 50V	C820	1-106-218-00	MYLAR	0.0082MF 10% 400V
C519	1-136-173-00	FILM	0.47MF 5% 50V	C821 $\Delta$	1-162-116-51	CERAMIC	680PF 10% 2KV
C520	1-102-121-00	CERAMIC	0.0022MF 10% 50V	C822	1-102-114-00	CERAMIC	470PF 10% 50V
C521	1-106-220-00	MYLAR	0.1MF 10% 100V	C823	1-106-359-00	MYLAR	0.0047MF 10% 400V
C522	1-124-122-11	ELECT	100MF 20% 50V	C824	1-102-212-00	CERAMIC	820PF 10% 500V
C523	1-108-614-11	MYLAR	0.001MF 10% 100V	C825	1-106-375-12	MYLAR	0.022MF 10% 250V
C524	1-108-798-11	MYLAR	0.0033MF 5% 50V			<FILTER>	
C525	1-102-973-00	CERAMIC	100PF 5% 50V	CF001	1-577-364-11	VIBRATOR, CERAMIC	
C526	1-102-951-00	CERAMIC	15PF 5% 50V	CF501	1-567-888-11	OSCILLATOR, CERAMIC	
C527	1-106-220-00	MYLAR	0.1MF 10% 100V			<DIODE>	
C531	1-124-190-00	ELECT	680MF 10% 25V	D001	8-719-911-19	DIODE 1SS119	
C532	1-124-122-11	ELECT	100MF 20% 50V	D002	8-719-109-98	DIODE RD6.8ES-B3	
C533	1-106-216-00	MYLAR	0.068MF 10% 100V	D003	8-719-911-19	DIODE 1SS119	
C534	1-124-120-11	ELECT	220MF 20% 16V	D004	8-719-911-19	DIODE 1SS119	
C536	1-131-365-00	TANTALUM	10MF 10% 16V	D005	8-719-109-89	DIODE RD5.6ES-B2	
C537	1-124-791-11	ELECT	1MF 20% 50V	D006	8-719-110-76	DIODE RD33ES-B1	
C538	1-108-614-11	MYLAR	0.001MF 10% 100V	D007	8-719-911-19	DIODE 1SS119	
C539	1-102-820-00	CERAMIC	330PF 5% 50V	D009	8-719-109-89	DIODE RD5.6ES-B2	
C592	1-124-122-11	ELECT	100MF 20% 50V	D010	8-719-109-93	DIODE RD6.2ES-B2	
C593	1-102-820-00	CERAMIC	330PF 5% 50V	D011	8-719-109-93	DIODE RD6.2ES-B2	
C601	1-162-599-12	CERAMIC	0.0047MF 250V	D271	8-719-110-36	DIODE RD13ES-B2	
C602	1-162-599-12	CERAMIC	0.0047MF 250V	D272	8-719-911-19	DIODE 1SS119	
C603	1-162-599-12	CERAMIC	0.0047MF 250V	D501	8-719-911-19	DIODE 1SS119	
C604	1-125-318-00	ELECT (BLOCK)	220MF 20% 400V	D504	8-719-911-55	DIODE U05G	
C605	1-124-510-11	ELECT	220MF 20% 35V	D506	8-719-016-42	DIODE MC932	
C606	1-102-114-00	CERAMIC	470PF 10% 50V	D508	8-719-911-19	DIODE 1SS119	
C607	1-130-834-00	MYLAR	1MF 10% 63V	D509	8-719-911-19	DIODE 1SS119	
C608	1-124-927-11	ELECT	4.7MF 20% 50V	D511	8-719-911-55	DIODE U05G	
C611	1-124-910-11	ELECT	47MF 20% 50V	D512	8-719-911-55	DIODE U05G	
C612	1-108-614-11	MYLAR	0.001MF 10% 100V	D513	8-719-109-81	DIODE RD4.7ES-B2	
C613	1-136-539-11	FILM	0.0022MF 3% 2KV	D601	8-719-946-90	DIODE KBU4JL-6088	
C614	1-102-030-00	CERAMIC	330PF 10% 500V	D602	8-719-300-33	DIODE RU-3AM	
C615	1-124-557-11	ELECT	1000MF 20% 25V				
C616	1-102-030-00	CERAMIC	330PF 10% 500V				
C617	1-124-122-11	ELECT	100MF 20% 50V				
C618	1-162-115-00	CERAMIC	330PF 10% 2KV				
C619	1-124-556-11	ELECT	2200MF 20% 16V				

D

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
D603	8-719-911-55	DIODE U05G		L810 $\Delta$	1-421-982-12	PMC	
D604	8-719-911-55	DIODE U05G					
D605	8-719-911-55	DIODE U05G					
D606	8-719-300-33	DIODE RU-3AM				<IC LINK>	
D607	8-719-300-33	DIODE RU-3AM		PS601 $\Delta$	1-532-984-91	LINK, IC (ICP-N50) 2A	
D608	8-719-300-33	DIODE RU-3AM		PS602 $\Delta$	1-532-984-91	LINK, IC (ICP-N50) 2A	
D609	8-719-110-76	DIODE RD33ES-B1					
D610	8-719-300-59	DIODE CTU-12S				<TRANSISTOR>	
D611	8-719-900-26	DIODE ERD29-08J		Q001	8-729-900-89	TRANSISTOR DTC144ES	
D612	8-719-300-59	DIODE CTU-12S		Q002	8-729-900-65	TRANSISTOR DTA144ES	
D613	8-719-300-33	DIODE RU-3AM		Q003	8-729-173-38	TRANSISTOR 2SA733-K	
D614	8-719-300-33	DIODE RU-3AM		Q004	8-729-173-38	TRANSISTOR 2SA733-K	
D616	8-719-109-93	DIODE RD6.2ES-B2		Q005	8-729-900-89	TRANSISTOR DTC144ES	
D617	8-719-911-19	DIODE 1SS119		Q006	8-729-900-89	TRANSISTOR DTC144ES	
D618	8-719-109-89	DIODE RD5.6ES-B2		Q007	8-729-900-89	TRANSISTOR DTC144ES	
D619	8-719-110-76	DIODE RD33ES-B1		Q008	8-729-900-89	TRANSISTOR DTC144ES	
D620	8-719-016-42	DIODE MC932		Q009	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D621	8-719-110-76	DIODE RD33ES-B1		Q251	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D622	8-719-911-19	DIODE 1SS119		Q261	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D623	8-719-911-19	DIODE 1SS119		Q271	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D624	8-719-911-19	DIODE 1SS119		Q502	8-729-173-38	TRANSISTOR 2SA733-K	
D630	8-719-110-39	DIODE RD15ES-B1		Q505	8-729-140-96	TRANSISTOR 2SD774-34	
D801	8-719-300-33	DIODE RU-3AM		Q506	8-729-140-97	TRANSISTOR 2SB734-34	
D802	8-719-300-33	DIODE RU-3AM		Q507	8-729-173-38	TRANSISTOR 2SA733-K	
D803	8-719-300-65	DIODE ES1F		Q598	8-729-173-38	TRANSISTOR 2SA733-K	
D804	8-719-911-55	DIODE U05G		Q601	8-729-111-67	TRANSISTOR 2SB1094-L	
D805	8-719-911-55	DIODE U05G		Q602	8-729-209-02	TRANSISTOR 2SD1548-LB	
D806	8-719-945-80	DIODE ERC06-15S		Q603	8-729-111-67	TRANSISTOR 2SB1094-L	
D807	8-719-945-80	DIODE ERC06-15S		Q604	8-729-173-38	TRANSISTOR 2SA733-K	
D808	8-719-900-26	DIODE ERD29-08J		Q605	8-729-119-78	TRANSISTOR 2SC2785-HFE	
		<IC>		Q606	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC001	8-759-035-37	IC SDA2083-A006		Q607	8-729-920-92	TRANSISTOR 2SD2096-EF	
IC002	8-752-332-82	IC CXD1050A-09P		Q608	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC003	8-759-945-58	IC RC4558P		Q609	8-729-320-62	TRANSISTOR 2SD789-34	
IC005	8-759-748-56	IC SDA2546		Q801	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC251	8-759-988-94	IC TDA2050		Q804	8-729-304-50	TRANSISTOR 2SD1941-06	
	4-201-023-01	SPACER, INSULATING; IC251		Q805	8-729-119-80	TRANSISTOR 2SC2688-LK	
	4-812-134-00	RIVET NYLON, 3.5; IC251				<RESISTOR>	
IC261	8-759-988-94	IC TDA2050		R001	1-249-413-11	CARBON 470 5% 1/4W	
	4-201-023-01	SPACER, INSULATING; IC261		R002	1-249-413-11	CARBON 470 5% 1/4W	
	4-812-134-00	RIVET NYLON, 3.5; IC261		R003	1-249-417-11	CARBON 1K 5% 1/4W	
IC501	8-759-970-73	IC TEA2028B		R004	1-249-417-11	CARBON 1K 5% 1/4W	
IC502	8-759-944-57	IC TDA8170		R005	1-249-417-11	CARBON 1K 5% 1/4W	
IC601	8-759-988-95	IC TEA2260		R006	1-249-429-11	CARBON 10K 5% 1/4W	
IC604	8-759-144-84	IC UPC24M05HF		R007	1-249-425-11	CARBON 4.7K 5% 1/4W	
IC608	8-759-982-13	IC/RC7812FA		R008	1-249-429-11	CARBON 10K 5% 1/4W	
		<COIL>		R009	1-249-429-11	CARBON 10K 5% 1/4W	
L001	1-408-414-00	INDUCTOR 27UH		R010	1-249-413-11	CARBON 470 5% 1/4W	
L501	1-408-225-00	INDUCTOR 3.3UH		R011	1-249-425-11	CARBON 4.7K 5% 1/4W	
L601	*1-420-872-00	COIL, AIR CORE		R012	1-249-417-11	CARBON 1K 5% 1/4W	
L602	1-410-396-41	FERRITE BEAD INDUCTOR		R013	1-249-429-11	CARBON 10K 5% 1/4W	
L603	1-410-396-41	FERRITE BEAD INDUCTOR		R014	1-249-428-11	CARBON 8.2K 5% 1/4W	
L604	1-410-671-31	INDUCTOR 47UH		R015	1-249-423-11	CARBON 3.3K 5% 1/4W	
L605	1-459-585-11	COIL (WITH CORE) (DRUM TYPE)		R016	1-249-435-11	CARBON 33K 5% 1/4W	
L606	1-421-013-00	COIL (HORIZONTAL CHOKE) 25UH		R017	1-249-436-11	CARBON 39K 5% 1/4W	
L607	1-410-671-31	INDUCTOR 47UH		R018	1-249-440-11	CARBON 82K 5% 1/4W	
L803	1-459-104-00	COIL, DUST CORE		R019	1-249-417-11	CARBON 1K 5% 1/4W	
L804	1-408-239-00	INDUCTOR 4.7MMH		R020	1-249-417-11	CARBON 1K 5% 1/4W	
L805 $\Delta$	1-459-755-12	COIL, HORIZONTAL LINEARITY		R021	1-249-425-11	CARBON 4.7K 5% 1/4W	
L806	1-459-111-00	COIL, DRAM CORE (CDI)		R022	1-249-425-11	CARBON 4.7K 5% 1/4W	
L809	*1-420-872-00	COIL, AIR CORE		R023	1-249-410-11	CARBON 270 5% 1/4W	

D

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R024	1-249-417-11	CARBON	1K 5% 1/4W	R264	1-216-357-00	METAL OXIDE	4.7 5% 1W F
R025	1-249-405-11	CARBON	100 5% 1/4W	R265	1-249-429-11	CARBON	10K 5% 1/4W
R026	1-249-417-11	CARBON	1K 5% 1/4W	R266	1-247-897-11	CARBON	560K 5% 1/4W
R027	1-249-405-11	CARBON	100 5% 1/4W	R267	1-249-431-11	CARBON	15K 5% 1/4W
R028	1-249-405-11	CARBON	100 5% 1/4W	R268	1-215-869-11	METAL OXIDE	1K 5% 1W F
R029	1-249-429-11	CARBON	10K 5% 1/4W	R269	1-249-425-11	CARBON	4.7K 5% 1/4W
R030	1-249-429-11	CARBON	10K 5% 1/4W	R271	1-249-415-11	CARBON	680 5% 1/4W
R031	1-249-433-11	CARBON	22K 5% 1/4W	R272	1-249-429-11	CARBON	10K 5% 1/4W
R032	1-249-429-11	CARBON	10K 5% 1/4W	R273	1-249-429-11	CARBON	10K 5% 1/4W
R033	1-249-429-11	CARBON	10K 5% 1/4W	R500	1-247-897-11	CARBON	560K 5% 1/4W
R034	1-249-431-11	CARBON	15K 5% 1/4W	R501	1-249-413-11	CARBON	470 5% 1/4W
R035	1-249-433-11	CARBON	22K 5% 1/4W	R502	1-249-409-11	CARBON	220 5% 1/4W
R036	1-249-432-11	CARBON	18K 5% 1/4W	R503	1-249-410-11	CARBON	270 5% 1/4W
R037	1-249-425-11	CARBON	4.7K 5% 1/4W	R504	1-215-427-00	METAL	1.8K 1% 1/6W
R038	1-249-422-11	CARBON	2.7K 5% 1/4W	R505	1-249-431-11	CARBON	15K 5% 1/4W
R039	1-249-433-11	CARBON	22K 5% 1/4W	R506	1-249-428-11	CARBON	8.2K 5% 1/4W
R040	1-249-431-11	CARBON	15K 5% 1/4W	R509	1-249-424-11	CARBON	3.9K 5% 1/4W
R041	1-249-429-11	CARBON	10K 5% 1/4W	R510	1-249-426-11	CARBON	5.6K 5% 1/4W
R042	1-249-417-11	CARBON	1K 5% 1/4W	R514	1-249-409-11	CARBON	220 5% 1/4W
R043	1-249-413-11	CARBON	470 5% 1/4W	R515	1-249-423-11	CARBON	3.3K 5% 1/4W
R044	1-249-441-11	CARBON	100K 5% 1/4W	R517	1-249-429-11	CARBON	10K 5% 1/4W
R045	1-249-423-11	CARBON	3.3K 5% 1/4W	R518	1-249-437-11	CARBON	47K 5% 1/4W
R046	1-249-435-11	CARBON	33K 5% 1/4W	R519	1-249-433-11	CARBON	22K 5% 1/4W
R047	1-249-429-11	CARBON	10K 5% 1/4W	R520	1-249-411-11	CARBON	330 5% 1/4W
R048	1-249-429-11	CARBON	10K 5% 1/4W	R521	1-249-405-11	CARBON	100 5% 1/4W
R049	1-249-429-11	CARBON	10K 5% 1/4W	R522	1-215-469-00	METAL	100K 1% 1/6W
R050	1-249-426-11	CARBON	5.6K 5% 1/4W	R523	1-249-417-11	CARBON	1K 5% 1/4W
R051	1-249-413-11	CARBON	470 5% 1/4W	R524	1-249-421-11	CARBON	2.2K 5% 1/4W
R052	1-249-417-11	CARBON	1K 5% 1/4W	R525	1-249-417-11	CARBON	1K 5% 1/4W
R053	1-249-417-11	CARBON	1K 5% 1/4W	R526	1-249-409-11	CARBON	220 5% 1/4W F
R054	1-249-417-11	CARBON	1K 5% 1/4W	R527	1-249-431-11	CARBON	15K 5% 1/4W
R055	1-249-411-11	CARBON	330 5% 1/4W	R528	1-249-408-11	CARBON	180 5% 1/4W
R056	1-249-405-11	CARBON	100 5% 1/4W	R529	1-249-427-11	CARBON	6.8K 5% 1/4W
R057	1-249-409-11	CARBON	220 5% 1/4W	R530	1-249-448-11	CARBON	1.2 5% 1/4W F
R058	1-249-424-11	CARBON	3.9K 5% 1/4W	R531	1-247-881-00	CARBON	120K 5% 1/4W
R059	1-249-417-11	CARBON	1K 5% 1/4W	R532	1-249-417-11	CARBON	1K 5% 1/4W
R060	1-249-417-11	CARBON	1K 5% 1/4W	R534	1-247-901-11	CARBON	820K 5% 1/4W
R061	1-249-417-11	CARBON	1K 5% 1/4W	R535	1-249-749-00	CARBON	2.2M 5% 1/4W
R062	1-249-417-11	CARBON	1K 5% 1/4W	R536	1-249-749-00	CARBON	2.2M 5% 1/4W
R063	1-249-417-11	CARBON	1K 5% 1/4W	R537	1-249-434-11	CARBON	27K 5% 1/4W
R064	1-249-417-11	CARBON	1K 5% 1/4W	R538	1-247-883-00	CARBON	150K 5% 1/4W
R065	1-249-417-11	CARBON	1K 5% 1/4W	R539	1-247-883-00	CARBON	150K 5% 1/4W
R066	1-249-417-11	CARBON	1K 5% 1/4W	R540	1-249-399-11	CARBON	33 5% 1/4W
R067	1-249-417-11	CARBON	1K 5% 1/4W	R541	1-249-438-11	CARBON	56K 5% 1/4W
R068	1-249-417-11	CARBON	1K 5% 1/4W	R542	1-249-389-11	CARBON	4.7 5% 1/4W
R069	1-249-417-11	CARBON	1K 5% 1/4W	R543	1-249-451-11	CARBON	2.2 5% 1/4W
R070	1-249-417-11	CARBON	1K 5% 1/4W	R544	1-247-745-11	CARBON	330 5% 1/2W
R071	1-249-417-11	CARBON	1K 5% 1/4W	R545	1-249-433-11	CARBON	22K 5% 1/4W
R072	1-249-417-11	CARBON	1K 5% 1/4W	R546	1-249-434-11	CARBON	27K 5% 1/4W
R073	1-249-417-11	CARBON	1K 5% 1/4W	R547	1-249-423-11	CARBON	3.3K 5% 1/4W
R074	1-249-425-11	CARBON	4.7K 5% 1/4W	R548	1-216-349-00	METAL OXIDE	1 5% 1W F
R075	1-249-409-11	CARBON	220 5% 1/4W	R549	1-216-454-11	METAL OXIDE	390 5% 2W F
R251	1-249-425-11	CARBON	4.7K 5% 1/4W	R550	1-249-440-11	CARBON	82K 5% 1/4W
R252	1-249-412-11	CARBON	390 5% 1/4W	R551	1-249-749-00	CARBON	2.2M 5% 1/4W
R253	1-249-429-11	CARBON	10K 5% 1/4W	R553	1-216-869-11	METAL OXIDE	1K 5% 1W
R254	1-216-357-00	METAL OXIDE	4.7 5% 1W F	R554	1-249-411-11	CARBON	330 5% 1/4W
R255	1-249-429-11	CARBON	10K 5% 1/4W	R555	1-249-749-00	CARBON	2.2M 5% 1/4W
R256	1-247-897-11	CARBON	560K 5% 1/4W	R556	1-249-405-11	CARBON	100 5% 1/4W
R257	1-249-431-11	CARBON	15K 5% 1/4W	R557	1-249-425-11	CARBON	4.7K 5% 1/4W
R258	1-215-869-11	METAL OXIDE	1K 5% 1W F	R558	1-247-895-00	CARBON	470K 5% 1/4W
R259	1-249-425-11	CARBON	4.7K 5% 1/4W	R559	1-249-427-11	CARBON	6.8K 5% 1/4W
R261	1-249-425-11	CARBON	4.7K 5% 1/4W	R560	1-249-411-11	CARBON	330 5% 1/4W
R262	1-249-412-11	CARBON	390 5% 1/4W	R591	1-249-416-11	CARBON	820 5% 1/4W
R263	1-249-429-11	CARBON	10K 5% 1/4W				

**D** **H1** **H2**

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R592	1-249-417-11	CARBON	1K 5% 1/4W	R5505	1-249-393-11	CARBON 10 5% 1/4W	
R593	1-249-419-11	CARBON	1.5K 5% 1/4W			<VARIABLE RESISTOR>	
R594	1-249-428-11	CARBON	8.2K 5% 1/4W	RV501	1-238-013-11	RES, ADJ, CARBON 2.2K	
R597	1-249-413-11	CARBON	470 5% 1/4W	RV502	1-238-016-11	RES, ADJ, CARBON 10K	
R598	1-215-900-11	METAL OXIDE	22K 5% 2W F	RV601	1-238-011-11	RES, ADJ, CARBON 470	
R599	1-247-887-00	CARBON	220K 5% 1/4W			<SPARK GAP>	
R600	1-249-381-11	CARBON	1 5% 1/4W	SG801	1-519-422-11	GAP, SPARK	
R603	1-216-400-11	METAL OXIDE	8.2 5% 3W F			<TRANSFORMER>	
R604	1-249-405-11	CARBON	100 5% 1/4W	T601 $\Delta$	1-449-822-11	TRANSFORMER	
R605	1-249-433-11	CARBON	22K 5% 1/4W	T602 $\Delta$	1-424-277-11	TRANSFORMER, TRIGGER PULSE	
R606	1-249-418-11	CARBON	1.2K 5% 1/4W	T801 $\Delta$	1-437-090-21	HDT	
R607	1-249-425-11	CARBON	4.7K 5% 1/4W	T802 $\Delta$	1-439-416-11	TRANSFORMER ASSY, FLYBACK (UX-1600)	
R608	1-216-488-11	METAL OXIDE	18K 5% 3W F			*****	
R609	1-249-396-11	CARBON	18 5% 1/4W			*1-631-220-11	H1 BOARD
R610	1-244-941-00	CARBON	680K 5% 1/2W			*****	
R611	1-249-400-11	CARBON	39 5% 1/4W			1-562-837-11	JACK
R612	1-249-417-11	CARBON	1K 5% 1/4W			*1-564-512-11	PLUG, CONNECTOR 9P
R613	1-249-441-11	CARBON	100K 5% 1/4W			1-568-678-11	TERMINAL BLOCK, S 3P
R614	1-205-758-11	WIREWOUND	100 10% 10W F			*1-568-878-51	PIN, CONNECTOR 3P
R616	1-247-881-00	CARBON	120K 5% 1/4W			*1-568-879-51	PIN, CONNECTOR 4P
R617	1-249-411-11	CARBON	330 5% 1/4W			*1-568-879-61	PIN, CONNECTOR 4P
R618	1-216-431-11	METAL OXIDE	560 5% 1W F			<RESISTOR>	
R619	1-249-429-11	CARBON	10K 5% 1/4W	R1651	1-249-413-11	CARBON 470 5% 1/4W	
R620	1-249-433-11	CARBON	22K 5% 1/4W	R1652	1-249-413-11	CARBON 470 5% 1/4W	
R621	1-249-431-11	CARBON	15K 5% 1/4W			<SWITCH>	
R622	1-249-429-11	CARBON	10K 5% 1/4W	S1651	1-571-532-21	SWITCH, TACTIL.	
R623	1-249-433-11	CARBON	22K 5% 1/4W	S1652	1-571-532-21	SWITCH, TACTIL.	
R624	1-249-426-11	CARBON	5.6K 5% 1/4W	S1653	1-571-532-21	SWITCH, TACTIL.	
R625	1-215-865-11	METAL OXIDE	220 5% 1W F			*****	
R626	1-249-411-11	CARBON	330 5% 1/4W			*1-631-221-11	H2 BOARD
R628	1-249-393-11	CARBON	10 5% 1/4W			*****	
R629	1-249-411-11	CARBON	330 5% 1/4W			*1-568-882-51	PIN, CONNECTOR 7P
R633	1-249-417-11	CARBON	1K 5% 1/4W			*4-374-987-01	GUIDE, LIGHT
R634	1-216-430-11	METAL OXIDE	390 5% 1W F			*4-381-686-01	BRACKET (B), LIGHT GUIDE
R635	1-249-429-11	CARBON	10K 5% 1/4W			<DIODE>	
R636	1-249-429-11	CARBON	10K 5% 1/4W	D1651	8-719-311-89	DIODE SEL1222R-C	
R643	1-217-189-21	WIREWOUND	0.12 5% 2W F			*4-387-801-01	HOLDER, LED; D1651
R647	1-216-485-11	METAL OXIDE	5.6K 5% 3W F	D1652	8-719-311-89	DIODE SEL1222R-C	
R648	1-216-485-11	METAL OXIDE	5.6K 5% 3W F			*4-387-801-01	HOLDER, LED; D1652
R651	1-249-405-11	CARBON	100 5% 1/4W	D1653	8-719-311-89	DIODE SEL1222R-C	
R653	1-205-758-11	WIREWOUND	100 10% 10W F			*4-387-801-01	HOLDER, LED; D1653
R802	1-249-443-11	CARBON	0.47 5% 1/4W F	D1654	8-719-948-31	DIODE LD-201VR	
R805	1-249-448-11	CARBON	1.2 5% 1/4W F			*4-387-825-02	HOLDER, LED; D1654
R806	1-249-439-11	CARBON	68K 5% 1/4W			<IC>	
R807	1-216-869-11	METAL OXIDE	1K 5% 1W	IC1651	8-741-138-70	IC BX-1387	
R809	1-202-821-11	SOLID	1.8K 10% 1/2W				
R810	1-202-818-00	SOLID	1K 10% 1/2W				
R811	1-215-882-00	METAL OXIDE	22 5% 2W F				
R812	1-249-494-11	CARBON	68K 5% 1/2W				
R815	1-215-884-11	METAL OXIDE	47 5% 2W F				
R816	1-215-868-00	METAL OXIDE	680 5% 1W F				
R817	1-249-417-11	CARBON	1K 5% 1/4W				
R820	1-249-403-11	CARBON	68 5% 1/4W				
R821	1-247-725-11	CARBON	10K 5% 1/4W F				
R822 $\Delta$	1-217-778-61	FUSIBLE	1K 5% 1W F				
R825	1-216-345-11	METAL OXIDE	0.47 5% 1W F				
R826	1-249-441-11	CARBON	100K 5% 1/4W				
R827	1-249-429-11	CARBON	10K 5% 1/4W				
R828	1-249-423-11	CARBON	3.3K 5% 1/4W				
R829	1-249-416-11	CARBON	820 5% 1/4W				
R831	1-249-451-11	CARBON	2.2 5% 1/4W				
R5501	1-249-429-11	CARBON	10K 5% 1/4W				
R5503	1-249-389-11	CARBON	4.7 5% 1/4W				
R5504	1-247-903-00	CARBON	1M 5% 1/4W				

H2	Y	J2	J1
----	---	----	----

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<RESISTOR>							
R1661	1-249-413-11	CARBON	470 5% 1/4W	R1714	1-249-417-11	CARBON	1K 5% 1/4W
R1662	1-249-413-11	CARBON	470 5% 1/4W	R1717	1-249-417-11	CARBON	1K 5% 1/4W
*****				R1718	1-249-417-11	CARBON	1K 5% 1/4W
*1-631-217-11 Y BOARD				*****			
*****				*1-631-222-11 J2 BOARD			
*1-568-881-61 PIN, CONNECTOR 6P				*****			
*1-568-882-71 PIN, CONNECTOR 7P				1-537-088-21 TERMINAL BOARD, INPUT/OUTPUT			
<CAPACITOR>				*1-564-517-11 PLUG, CONNECTOR 2P			
C1701	1-126-233-11	ELECT	22MF 20% 50V	*1-564-519-11 PLUG, CONNECTOR 4P			
C1702	1-101-004-00	CERAMIC	0.01MF 50V	<CAPACITOR>			
C1703	1-126-233-11	ELECT	22MF 20% 50V	C1751	1-101-005-00	CERAMIC	0.022MF 50V
C1704	1-101-004-00	CERAMIC	0.01MF 50V	C1752	1-101-005-00	CERAMIC	0.022MF 50V
C1705	1-126-233-11	ELECT	22MF 20% 50V	C1755	1-102-114-00	CERAMIC	470PF 10% 50V
C1706	1-126-233-11	ELECT	22MF 20% 50V	C1756	1-102-114-00	CERAMIC	470PF 10% 50V
C1707	1-126-233-11	ELECT	22MF 20% 50V	<COIL>			
C1710	1-102-959-00	CERAMIC	22PF 5% 50V	L1751	1-412-240-11	INDUCTOR, WIDE BAND	
C1711	1-101-888-00	CERAMIC	68PF 5% 50V	L1752	1-412-240-11	INDUCTOR, WIDE BAND	
<DIODE>				*****			
D1701	8-719-911-19	DIODE	1SS119	*A-1651-003-A J1 BOARD, COMPLETE			
<NR PACK>				*****			
DNR170	1-466-181-11	NR PACK (NRP-2E)		1-561-534-41 SOCKET 21P			
<IC>				*1-564-518-11 PLUG, CONNECTOR 3P			
IC1701	8-759-982-10	IC RC7809FA		*1-564-524-11 PLUG, CONNECTOR 9P			
IC1702	8-759-604-29	IC M5F7805		*1-564-527-11 PLUG, CONNECTOR 12P			
<COIL>				*1-566-641-11 CONNECTOR, HINGE (TAB) 18P			
L1701	1-410-671-31	INDUCTOR	47UH	<CAPACITOR>			
L1702	1-408-405-00	INDUCTOR	4.7UH	C203	1-124-925-11	ELECT	2.2MF 20% 50V
L1703	1-410-671-31	INDUCTOR	47UH	C205	1-124-927-11	ELECT	4.7MF 20% 50V
<TRANSISTOR>				C206	1-124-925-11	ELECT	2.2MF 20% 50V
Q1701	8-729-900-89	TRANSISTOR DTC144ES		C207	1-124-927-11	ELECT	4.7MF 20% 50V
Q1702	8-729-900-89	TRANSISTOR DTC144ES		C213	1-126-233-11	ELECT	22MF 20% 50V
Q1703	8-729-900-80	TRANSISTOR DTC114ES		C214	1-106-363-00	MYLAR	0.0068MF 10% 400V
Q1704	8-729-119-78	TRANSISTOR 2SC2785-HFE		C217	1-106-363-00	MYLAR	0.0068MF 10% 400V
Q1705	8-729-173-38	TRANSISTOR 2SA733-K		C218	1-106-375-12	MYLAR	0.022MF 10% 250V
<RESISTOR>				C219	1-106-375-12	MYLAR	0.022MF 10% 250V
R1701	1-215-860-11	METAL OXIDE	33 5% 1W	C220	1-108-620-11	MYLAR	0.0033MF 10% 100V
R1702	1-249-425-11	CARBON	4.7K 5% 1/4W	C221	1-108-620-11	MYLAR	0.0033MF 10% 100V
R1703	1-249-434-11	CARBON	27K 5% 1/4W	C222	1-106-385-00	MYLAR	0.056MF 10% 100V
R1704	1-249-425-11	CARBON	4.7K 5% 1/4W	C223	1-106-385-00	MYLAR	0.056MF 10% 100V
R1705	1-249-426-11	CARBON	5.6K 5% 1/4W	C224	1-106-367-00	MYLAR	0.01MF 10% 400V
R1706	1-249-427-11	CARBON	6.8K 5% 1/4W	C225	1-136-173-00	FILM	0.47MF 5% 50V
R1707	1-249-429-11	CARBON	10K 5% 1/4W	C226	1-136-173-00	FILM	0.47MF 5% 50V
R1708	1-249-429-11	CARBON	10K 5% 1/4W	C227	1-106-375-12	MYLAR	0.022MF 10% 250V
R1710	1-249-433-11	CARBON	22K 5% 1/4W	C228	1-106-379-12	MYLAR	0.033MF 10% 250V
R1711	1-249-438-11	CARBON	56K 5% 1/4W	C229	1-106-371-00	MYLAR	0.015MF 10% 400V
R1712	1-249-413-11	CARBON	470 5% 1/4W	C230	1-106-371-00	MYLAR	0.015MF 10% 400V
R1713	1-249-414-11	CARBON	560 5% 1/4W	C231	1-124-902-00	ELECT	0.47MF 20% 50V
				C232	1-123-875-11	ELECT	10MF 20% 50V
				C233	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
				C234	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
				C235	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
				C236	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
				C237	1-124-902-00	ELECT	0.47MF 20% 50V
				C238	1-163-125-00	CERAMIC CHIP	220PF 5% 50V



J1

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK	
C239	1-126-103-11	ELECT	470MF	20%	16V	D206	8-719-110-04	DIODE RD7.5ES-B3
C1401	1-123-875-11	ELECT	10MF	20%	50V	D1401	8-719-110-04	DIODE RD7.5ES-B3
C1402	1-126-103-11	ELECT	470MF	20%	16V	D1403	8-719-110-04	DIODE RD7.5ES-B3
C1403	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	D1404	8-719-110-04	DIODE RD7.5ES-B3
C1404	1-124-902-00	ELECT	0.47MF	20%	50V	D1405	8-719-110-04	DIODE RD7.5ES-B3
C1405	1-136-017-00	CERAMIC CHIP	0.0047MF		50V	D1406	8-719-110-04	DIODE RD7.5ES-B3
C1406	1-124-902-00	ELECT	0.47MF	20%	50V	D1407	8-719-110-18	DIODE RD10ES-B3
C1407	1-124-910-11	ELECT	47MF	20%	50V	D1408	8-719-110-14	DIODE RD9.1ES-B3
C1408	1-124-122-11	ELECT	100MF	20%	50V	D1409	8-719-110-14	DIODE RD9.1ES-B3
C1409	1-126-233-11	ELECT	22MF	20%	50V	D1410	8-719-110-14	DIODE RD9.1ES-B3
C1410	1-123-875-11	ELECT	10MF	20%	50V	D1415	8-719-110-04	DIODE RD7.5ES-B3
C1411	1-123-875-11	ELECT	10MF	20%	50V	D1418	8-719-110-04	DIODE RD7.5ES-B3
C1412	1-124-910-11	ELECT	47MF	20%	50V	D1419	8-719-110-04	DIODE RD7.5ES-B3
C1413	1-124-910-11	ELECT	47MF	20%	50V	D1420	8-719-110-04	DIODE RD7.5ES-B3
C1414	1-123-875-11	ELECT	10MF	20%	50V	D1421	8-719-110-04	DIODE RD7.5ES-B3
C1415	1-124-902-00	ELECT	0.47MF	20%	50V	D1422	8-719-110-04	DIODE RD7.5ES-B3
C1416	1-124-902-00	ELECT	0.47MF	20%	50V	D1423	8-719-110-04	DIODE RD7.5ES-B3
C1417	1-124-120-11	ELECT	220MF	20%	16V	D1424	8-719-110-04	DIODE RD7.5ES-B3
C1418	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	D1425	8-719-110-04	DIODE RD7.5ES-B3
C1419	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	D1426	8-719-110-04	DIODE RD7.5ES-B3
C1425	1-124-902-00	ELECT	0.47MF	20%	50V	D1501	8-719-300-33	DIODE RU-3AM
C1426	1-124-902-00	ELECT	0.47MF	20%	50V	D1502	8-719-911-19	DIODE ISS119
C1427	1-136-017-00	CERAMIC CHIP	0.0047MF		50V	D1503	8-719-911-19	DIODE ISS119
C1428	1-136-017-00	CERAMIC CHIP	0.0047MF		50V	D1504	8-719-911-19	DIODE ISS119
C1429	1-136-017-00	CERAMIC CHIP	0.0047MF		50V	D1505	8-719-911-19	DIODE ISS119
C1430	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	D1506	8-719-110-85	DIODE RD36ES-B4
C1431	1-126-529-11	ELECT	0.47MF	20%	50V	D1507	8-719-911-19	DIODE ISS119
C1432	1-124-902-00	ELECT	0.47MF	20%	50V	D1510	8-719-911-19	DIODE ISS119
C1433	1-124-122-11	ELECT	100MF	20%	50V			
C1436	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V			
C1437	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V			
C1438	1-106-367-00	MYLAR	0.01MF	10%	400V			
C1439	1-106-367-00	MYLAR	0.01MF	10%	400V	IC201	8-759-013-17	IC TDA6200
C1440	1-123-875-11	ELECT	10MF	20%	50V	IC1401	8-752-032-27	IC CXA1114P
C1441	1-123-875-11	ELECT	10MF	20%	50V	IC1402	8-759-946-32	IC TEA2014A
C1442	1-124-910-11	ELECT	47MF	20%	50V	IC1403	8-759-240-53	IC TC4053BP
C1443	1-124-910-11	ELECT	47MF	20%	50V	IC1501	8-759-942-16	IC TEA2031A
C1444	1-124-910-11	ELECT	47MF	20%	50V			
C1445	1-102-824-00	CERAMIC	470PF	5%	50V			
C1446	1-102-824-00	CERAMIC	470PF	5%	50V			
C1501	1-123-875-11	ELECT	10MF	20%	50V	Q201	8-729-271-22	TRANSISTOR 2SC2712-G
C1502	1-123-875-11	ELECT	10MF	20%	50V	Q202	8-729-271-22	TRANSISTOR 2SC2712-G
C1503	1-108-614-11	MYLAR	0.001MF	10%	100V	Q1401	8-729-216-22	TRANSISTOR 2SA1162
C1504	1-124-910-11	ELECT	47MF	20%	50V	Q1402	8-729-271-22	TRANSISTOR 2SC2712-G
C1505	1-106-383-00	MYLAR	0.047MF	10%	100V	Q1403	8-729-271-22	TRANSISTOR 2SC2712-G
C1507	1-108-620-11	MYLAR	0.0033MF	10%	100V	Q1404	8-729-216-22	TRANSISTOR 2SA1162
C1508	1-123-875-11	ELECT	10MF	20%	50V			
C1509	1-124-791-11	ELECT	1MF	20%	50V			
C1511	1-123-875-11	ELECT	10MF	20%	50V			
C1512	1-106-363-00	MYLAR	0.0068MF	10%	400V	R201	1-216-091-00	METAL GLAZE 56K 5% 1/10W
C1513	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	R202	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
C1514	1-106-375-12	MYLAR	0.022MF	10%	250V	R203	1-216-075-00	METAL GLAZE 12K 5% 1/10W
C1515	1-102-117-00	CERAMIC	820PF	10%	50V	R204	1-216-085-00	METAL GLAZE 33K 5% 1/10W
						R205	1-216-085-00	METAL GLAZE 33K 5% 1/10W
						R206	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
						R207	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
						R208	1-216-077-00	METAL GLAZE 15K 5% 1/10W
						R209	1-216-081-00	METAL GLAZE 22K 5% 1/10W
						R210	1-216-077-00	METAL GLAZE 15K 5% 1/10W
						R211	1-216-097-00	METAL GLAZE 100K 5% 1/10W
						R212	1-216-081-00	METAL GLAZE 22K 5% 1/10W
						R213	1-216-077-00	METAL GLAZE 15K 5% 1/10W
						R214	1-216-033-00	METAL GLAZE 220 5% 1/10W
						R215	1-216-081-00	METAL GLAZE 22K 5% 1/10W

J1

REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
R216	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R1454	1-216-180-00	METAL GLAZE	180 5% 1/8W
R217	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R1455	1-216-180-00	METAL GLAZE	180 5% 1/8W
R218	1-216-033-00	METAL GLAZE	220 5% 1/10W	R1457	1-216-025-00	METAL GLAZE	100 5% 1/10W
R219	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R1459	1-216-025-00	METAL GLAZE	100 5% 1/10W
R220	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W	R1460	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R221	1-216-041-00	METAL GLAZE	470 5% 1/10W	R1461	1-216-190-00	METAL GLAZE	470 5% 1/8W
R222	1-216-041-00	METAL GLAZE	470 5% 1/10W	R1462	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R223	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R1463	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R224	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R1464	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R225	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R1465	1-216-023-00	METAL GLAZE	82 5% 1/10W
R226	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R1466	1-216-033-00	METAL GLAZE	220 5% 1/10W
R227	1-216-033-00	METAL GLAZE	220 5% 1/10W	R1467	1-216-025-00	METAL GLAZE	100 5% 1/10W
R228	1-216-033-00	METAL GLAZE	220 5% 1/10W	R1468	1-216-025-00	METAL GLAZE	100 5% 1/10W
R229	1-216-075-00	METAL GLAZE	12K 5% 1/10W	R1469	1-216-025-00	METAL GLAZE	100 5% 1/10W
R230	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R1470	1-216-025-00	METAL GLAZE	100 5% 1/10W
R231	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R1471	1-216-023-00	METAL GLAZE	82 5% 1/10W
R232	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R1472	1-216-023-00	METAL GLAZE	82 5% 1/10W
R233	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R1473	1-216-023-00	METAL GLAZE	82 5% 1/10W
R234	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R1474	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R240	1-216-033-00	METAL GLAZE	220 5% 1/10W	R1476	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R1401	1-216-023-00	METAL GLAZE	82 5% 1/10W	R1477	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R1402	1-216-170-00	METAL GLAZE	68 5% 1/8W	R1478	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R1403	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R1480	1-216-190-00	METAL GLAZE	470 5% 1/8W
R1404	1-216-178-00	METAL GLAZE	150 5% 1/8W	R1482	1-216-178-00	METAL GLAZE	150 5% 1/8W
R1405	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R1483	1-216-178-00	METAL GLAZE	150 5% 1/8W
R1407	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R1484	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R1408	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R1485	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R1409	1-216-041-00	METAL GLAZE	470 5% 1/10W	R1486	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R1410	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R1487	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R1411	1-216-041-00	METAL GLAZE	470 5% 1/10W	R1488	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R1412	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R1489	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R1413	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R1501	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R1414	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R1502	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R1415	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R1503	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R1416	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R1504	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R1417	1-216-023-00	METAL GLAZE	82 5% 1/10W	R1505	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R1418	1-247-738-11	CARBON	82 5% 1/2W F	R1506	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R1422	1-216-025-00	METAL GLAZE	100 5% 1/10W	R1509	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R1423	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R1510	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R1424	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R1511	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R1425	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R1512	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R1426	1-216-025-00	METAL GLAZE	100 5% 1/10W	R1513	1-216-091-00	METAL GLAZE	56K 5% 1/10W
R1427	1-216-001-00	METAL GLAZE	10 5% 1/10W	R1514	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R1428	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R1515	1-216-117-00	METAL GLAZE	680K 5% 1/10W
R1429	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R1516	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R1430	1-216-170-00	METAL GLAZE	68 5% 1/8W	R1517	1-216-033-00	METAL GLAZE	220 5% 1/10W
R1431	1-249-413-11	CARBON	470 5% 1/4W	R1519	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R1432	1-249-413-11	CARBON	470 5% 1/4W	R1520	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R1433	1-216-033-00	METAL GLAZE	220 5% 1/10W	R1521	1-216-214-00	METAL GLAZE	4.7K 5% 1/8W
R1434	1-249-393-11	CARBON	10 5% 1/4W F	R1556	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W
R1437	1-216-073-00	METAL GLAZE	10K 5% 1/10W	<VARIABLE RESISTOR>			
R1440	1-216-045-00	METAL GLAZE	680 5% 1/10W	RV1501	1-238-023-11	RES, ADJ, CARBON 470K	
R1441	1-216-045-00	METAL GLAZE	680 5% 1/10W	RV1502	1-228-994-00	RES, ADJ, CARBON 10K	
R1442	1-216-089-00	METAL GLAZE	47K 5% 1/10W	RV1503	1-238-017-11	RES, ADJ, CARBON 22K	
R1443	1-216-089-00	METAL GLAZE	47K 5% 1/10W	RV1504	1-238-012-11	RES, ADJ, CARBON 1K	
R1444	1-216-033-00	METAL GLAZE	220 5% 1/10W	RV1505	1-238-023-11	RES, ADJ, CARBON 470K	
R1445	1-216-095-00	METAL GLAZE	82K 5% 1/10W	RV1506	1-238-017-11	RES, ADJ, CARBON 22K	
R1446	1-216-033-00	METAL GLAZE	220 5% 1/10W	RV1507	1-238-009-11	RES, ADJ, CARBON 220	
R1447	1-216-033-00	METAL GLAZE	220 5% 1/10W	RV1508	1-238-016-11	RES, ADJ, CARBON 10K	
R1448	1-216-025-00	METAL GLAZE	100 5% 1/10W	RV1509	1-238-023-11	RES, ADJ, CARBON 470K	
R1452	1-216-049-00	METAL GLAZE	1K 5% 1/10W	*****			
R1453	1-216-049-00	METAL GLAZE	1K 5% 1/10W				

The components identified by shading and mark **△** are critical for safety. Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
---------	----------	-------------	--------

MISCELLANEOUS  
\*\*\*\*\*

△	1-426-372-11	COIL, DEMAGNETIZATION	
△	1-451-311-31	DEFLECTION YORE (Y25FPA)	
	1-452-032-00	MAGNET, DISK; 10MM φ	
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM φ	
△	1-575-487-11	CORD, POWER (WITH NOISE FILTER)	
V901	△ 8-733-224-05	PICTURE TUBE (A59JWC60X)	

\*\*\*\*\*

ACCESSORIES AND PACKING MATERIALS  
\*\*\*\*\*

PART NO.	DESCRIPTION	REMARK
----------	-------------	--------

1-465-363-11	COMMANDER ASSY (RM-689)	
*A-1678-001-A	BOX ASSY, WOOFER	
*A-1678-010-A	BOX ASSY (RIGHT), SPEAKER	
*A-1678-012-A	BOX ASSY (LEFT), SPEAKER	
*3-704-280-01	BAG, PROTECTION (STANDARD)	
3-759-001-12	MANUAL, INSTRUCTION	
*4-201-012-01	CUSHION (UPPER) (ASSY)	
*4-201-013-01	CUSHION (LOWER) (ASSY)	
*4-201-015-01	INDIVIDUAL CARTON	
*4-380-340-01	BAG, PROTECTION	